Draft

BONSALL HIGH SCHOOL

Environmental Impact Report

Prepared for
Bonsall Unified School District

February 2018

ESA

Draft

BONSALL HIGH SCHOOL

Environmental Impact Report

Prepared for
Bonsall Unified School District

February 2018

550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200
www.esassoc.com

ESA

Bend	Oakland	San Francisco
Camarillo	Orlando	Santa Monica
Delray Beach	Pasadena	Sarasota
Destin	Petaluma	Seattle
Irvine	Portland	Sunrise
Los Angeles	Sacramento	Tampa
Miami	San Diego	

160855

OUR COMMITMENT TO SUSTAINABILITY | ESA helps a variety of public and private sector clients plan and prepare for climate change and emerging regulations that limit GHG emissions. ESA is a registered assessor with the California Climate Action Registry, a Climate Leader, and founding reporter for the Climate Registry. ESA is also a corporate member of the U.S. Green Building Council and the Business Council on Climate Change (BC3). Internally, ESA has adopted a Sustainability Vision and Policy Statement and a plan to reduce waste and energy within our operations. This document was produced using recycled paper.

TABLE OF CONTENTS

Bonsall High School DEIR

Page

Executive Summary ES-1
ES.1 Introduction ES-1
ES.2 Project Objectives ES-1
ES.3 Project Location ES-2
ES.4 Project Description ES-2
ES.5 Summary of Impacts ES-6
ES.6 Areas of Known Controversy ES-27
ES.7 Significant Irreversible Environmental Changes ES-27
ES.8 Project Alternatives ES-27
ES.9 Organization of this EIR ES-28

Chapter 1, Introduction 1-1
1.1 Purpose of the EIR 1-1
1.2 Intended Use of this EIR 1-1
1.3 CEQA Environmental Review Process 1-2
1.4 Organization of the Draft EIR 1-6

Chapter 2, Project Description 2-1
2.1 Introduction 2-1
2.2 Project Location 2-2
2.3 Existing Setting 2-2
2.4 Project Objectives 2-2
2.5 Project Characteristics 2-3
2.6 Project Approvals and Intended Uses of the EIR 2-15

Chapter 3, Environmental Analysis 3-1
Scope of the Environmental Impact Analysis 3-1
3.1 Aesthetics 3.1-1
3.2 Agricultural Resources 3.2-1
3.3 Air Quality 3.3-1
3.4 Biological Resources 3.4-1
3.5 Cultural Resources 3.5-1
3.6 Energy 3.6-1
3.7 Geology and Soils 3.7-1
3.8 Greenhouse Gas Emissions 3.8-1
3.9 Hydrology and Water Quality 3.9-1
3.10 Land Use and Planning 3.10-1
3.11 Noise 3.11-1
3.12 Public Services 3.12-1
3.13 Transportation and Traffic 3.13-1
3.14 Tribal Cultural Resources 3.14-1
3.15 Utilities 3.15-1

Page

Chapter 4, Other CEQA Considerations 4-1
4.1 Effects Found not to be Significant 4-1
4.2 Significant Environmental Effects 4-12
4.3 Significant Environmental Effects That Cannot Be Avoided if the Project is Implemented 4-13
4.4 Significant Irreversible Changes 4-13
4.5 Growth-Inducing Impacts 4-13
4.6 References 4-17

Chapter 5, Alternatives 5-1
5.1 Introduction 5-1
5.2 Project Objectives 5-2
5.3 Alternatives Not Further Evaluated in This EIR 5-2
5.4 Review of Significant Environmental Impacts 5-3
5.5 Alternatives Selected for Analysis 5-4
5.6 Environmental Analysis of Alternative 1 (No Project/No Build) 5-5
5.7 Environmental Analysis of Alternative 2 (No Project/Development in Accordance with the General Plan) 5-8
5.8 Environmental Analysis of Alternative 3 (Phase 1 Only) 5-15
5.8 Comparative Summary of the Alternatives 5-21
5.9 Environmental Superior Alternative 5-28

Chapter 6, Report Preparation 6-1
Lead Agency 6-1
EIR Consultant 6-1

Appendices

A Notice of Preparation
B LARA Model Calculations
C Air Quality Monitoring
D Biological Resource Assessment and Jurisdictional Delineation
E Botanical Survey
F Small Mammal Trapping Report
G Oak Tree Survey
H Stephen's Kangaroo Rat Survey
I Burrowing Owl Survey
J Sensitive Bird Surveys
K Cultural Resources Report
L Energy Consumption Worksheets
M Geotechnical Evaluation
N Phase I Environmental Site Assessment
O Greenhouse Gas Emissions Modeling
P Noise Modeling
Q Traffic Report
R Project Facility Availability – Water
S Hydrology and Water Quality Study
T Alternative Site Evaluation Report

Page

Figures

ES-1 Regional Location Map ES-4
ES-2 Vicinity Map ES-5
2-1 Site Plan 2-5
2-2 Illustrative Site Plan 2-6
2-3 Proposed Gird Road Geometrics 2-8
2-4 Elevations 2-10
3-1 Cumulative Projects Map 3-7
3.1-1 Existing Topography 3.1-4
3.1-2 Viewpoints 3.1-6
3.2-1 Zone of Influence 3.2-11
3.4-1 Existing Vegetation/Jurisdictional Areas 3.4-4
3.4-2 Impacted Vegetation/Jurisdictional Areas 3.4-19
3.9-1 Existing Hydrology 3.9-3
3.9-2 100-Year Flood Zone and Dam Inundation Zones 3.9-6
3.9-3 Post-Development Hydrology and Water Quality 3.9-15
3.10-1 Existing Land Use 3.10-2
3.10-2 Existing San Diego County General Plan Land Use Designations 3.10-3
3.10-3 Existing San Diego County Zoning Designations 3.10-4
3.11-1 Decibel Scale and Common Noise Sources 3.11-3
3.11-2 Noise-Sensitive Receptors 3.11-8
3.11-3 Noise Compatibility Guidelines 3.11-13

Tables

ES-1 Project Components ES-6
ES-2 Summary of Impacts and Mitigation Measures for the Bonsall High School Project ES-7
1-1 Summary of NOP Comments 1-3
2-1 Project Components 2-9
3-1 Cumulative Project List 3-5
3.2-1 Interpretation of LARA Model Results 3.2-5
3.2-2 Soil Quality Matrix 3.2-9
3.2-3 Soil Quality Matrix Interpretation 3.2-9
3.2-4 LARA Model Results 3.2-12
3.3-1 Air Quality Data Summary for Project Area 3.3-4
3.3-2 San Diego Air Basin Attainment Status 3.3-5
3.3-3 Ambient Air Quality Standards for Criteria Pollutants 3.3-6
3.3-4 Proposed Project Construction Emissions 3.3-22
3.3-5 Proposed Project Operational Emissions 3.3-23
3.3-6 Level of Service and Peak Hourly Traffic Volumes 3.3-25
3.4-1 Special-Status Plant Species with a Potential to Occur 3.4-6
3.4-2 Special-Status Wildlife Species with a Potential to Occur 3.4-8
3.4-3 Project Impacts to Vegetation Communities 3.4-25
3.5-1 Previously Recorded Cultural Resources within ½ Mile of the Project Site 3.5-12
3.6-1 Project Construction Fuel Usage 3.6-11
3.6-2 Project Operational Energy Usage 3.6-12
3.6-3 Project Energy Usage and State and Regional Energy Supply 3.6-15

Page

Tables (continued)

3.8-1 Estimated Greenhouse Gas Emissions Reductions Required by HSC Division 25.5 ..... 3.8-7
3.8-2 Estimated Total Construction GHG Emissions 3.8-17
3.8-3 Estimated Construction and Build Out Operations GHG Emissions 3.8-18
3.9-1 Lower San Luis Rey River Water Quality Impairments, Sources and TMDLs 3.9-2
3.9-2 Priority Water Quality Conditions in the San Luis Rey Watershed 3.9-8
3.9-3 Peak Flow Summary 3.9-14
3.11-1 Existing Roadway Noise Levels 3-11-9
3.11-2 Caltrans Vibration Damage Potential Threshold Criteria 3-11-11
3.11-3 Caltrans Vibration Annoyance Potential Criteria 3-11-12
3.11-4 Noise Standards 3-11-14
3.11-5 County of San Diego Sound Level Limits in Decibels 3-11-16
3.11-6 Construction Equipment Noise Levels 3-11-20
3.11-7 Estimate of Construction Noise Levels (L_{eq}) at Existing Offsite Sensitive Receiver Locations 3-11-21
3.11-8 Offsite Traffic Noise Impacts – Existing with Project Conditions 3-11-25
3.11-9 Offsite Traffic Noise Impacts – Future (2025) with Project Conditions 3-11-26
3.11-10 Composite Noise Levels at Sensitive Receptor Locations from Project Operations 3-11-28
3.11-11 Vibration Source Levels for Construction Equipment 3-11-29
3.11-12 Groundborne Vibration Levels at Offsite Sensitive Uses Compared to Caltrans' Vibration Damage Potential Threshold 3-11-30
3.11-13 Offsite Traffic Noise Impacts – Future 2025 Cumulative Increment 3-11-34
3.12-1 Fire Stations Serving Project Area 3.12-1
3.12-2 BUSD Schools 3.12-2
3.13-1 Existing Intersection Level of Service (LOS) and Delay (seconds per vehicle) 3.13-3
3.13-2 Project Trip Generation 3.13-8
3.13-3 Existing Plus Project Significant Impact Evaluation 3.13-9
3.13-4 Cumulative (Year 2025) Plus Project Significant Impact Evaluation 3.13-13
3.15-1 Existing and Projected Water Supply and Demand 3.15-1
4-1 Agencies Having Authority to Implement Mitigation Measures for Growth-related Impacts 4-16
5-1 Alternative Comparison 5-22
5-2 Consistency with project objectives 5-26

EXECUTIVE SUMMARY

ES.1 Introduction

To comply with the California Environmental Quality Act (CEQA), the Bonsall Unified School District (BUSD) has prepared the Bonsall high School (proposed project) Draft Environmental Impact Report (EIR). The proposed project would construct a new high school to serve existing and future high school-aged students within the BUSD service boundary. BUSD, as the Lead Agency, has prepared this Draft EIR to provide the public and trustee agencies with information about the potential effects on the local and regional environment associated with implementation of the proposed project. This Draft EIR has been prepared in compliance with the CEQA of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. Seq. and the *CEQA Guidelines* in the Code of Regulations, Title 14, Division 6, Chapter 3.

Bonsall High School currently serves grades 9, 10, 11 and 12 and shares campus space with the 17.4 acre Sullivan Middle School, and will graduate its first class in 2018. Bonsall High School has a current enrollment of 328 students and operates out of a single two-story building and four portable classrooms. The high school shares food service, athletic fields/facilities and parking with Sullivan Middle School. Expansion of Bonsall High School in its current location on the Sullivan Middle School campus has been determined to be infeasible due to physical site constraints. Anticipated high school student population growth requires that a new high school be constructed on a stand-alone site which can accommodate typical high school facilities and programs. Once the new high school is completed, the existing Bonsall High School facilities on the Sullivan Middle school campus will be converted to middle school facilities.

ES.2 Project Objectives

The objectives for the proposed project are as follows:

- Design and construct the high school to avoid or minimize impacts to sensitive environmental resources and the surrounding community. Minimize impacts to the regional circulation system. Construct a public high school campus to accommodate the anticipated growth in the BUSD high student population and relieve overcrowding of high school students over the next 20 years.
- Allow for continued growth in the middle school student population and associated educational facilities at the existing Sullivan Middle School.
- Allow for phased construction of the high school campus in accordance with student population growth projections and available construction funding from local sources as well as the District's eligibility for potential State Bond Funding from Proposition 51 in the approximate amount of $9 Million.

- Minimize required student transportation and staff commuting distances by centrally locating the high school campus within BUSD not more than 1/4 mile from an arterial or collection road.

- Locate the high school campus on a site that is large enough to accommodate anticipated growth in the BUSD high school population and typical high school facilities and programs (25-60 acres) pursuant to the California Department of Education school site selection criteria, proximate to available utilities, outside of a flood plain or flood way, and containing efficient ingress and egress and to maximize first responder access.

- Design and construct the high school to avoid or minimize impacts to sensitive environmental resources and the surrounding community. Minimize impact to the regional circulation system.

ES.3 Project Location

The project site is located within the unincorporated community of Fallbrook in the north-central portion of San Diego County (**Figure ES-1**). The project is located within Assessor Parcel Number (APN) 124-340-3400 approximately 0.4-miles north of the intersection of State Route 76 (SR 76) and Gird Road (**Figure ES-2**). Specifically, the project is located in an unsectioned portion of Township 10 South, Range 3 West on the Bonsall USGS 7.5-minute topographic quadrangle.

The project site is currently vacant undeveloped land covered by grasses, riparian habitat, eucalyptus woodland, oak trees, barren areas with exposed sandy soils, and drainages. The site topography ranges in elevation from 265-288 feet above mean sea level (amsl) and generally slopes to the southeast. The project site is located within the Fallbrook Community Plan, and has a Public/Semi-Public Facilities General Plan Land Use designation is zoned as Limited Agricultural (A70).

ES.4 Project Description

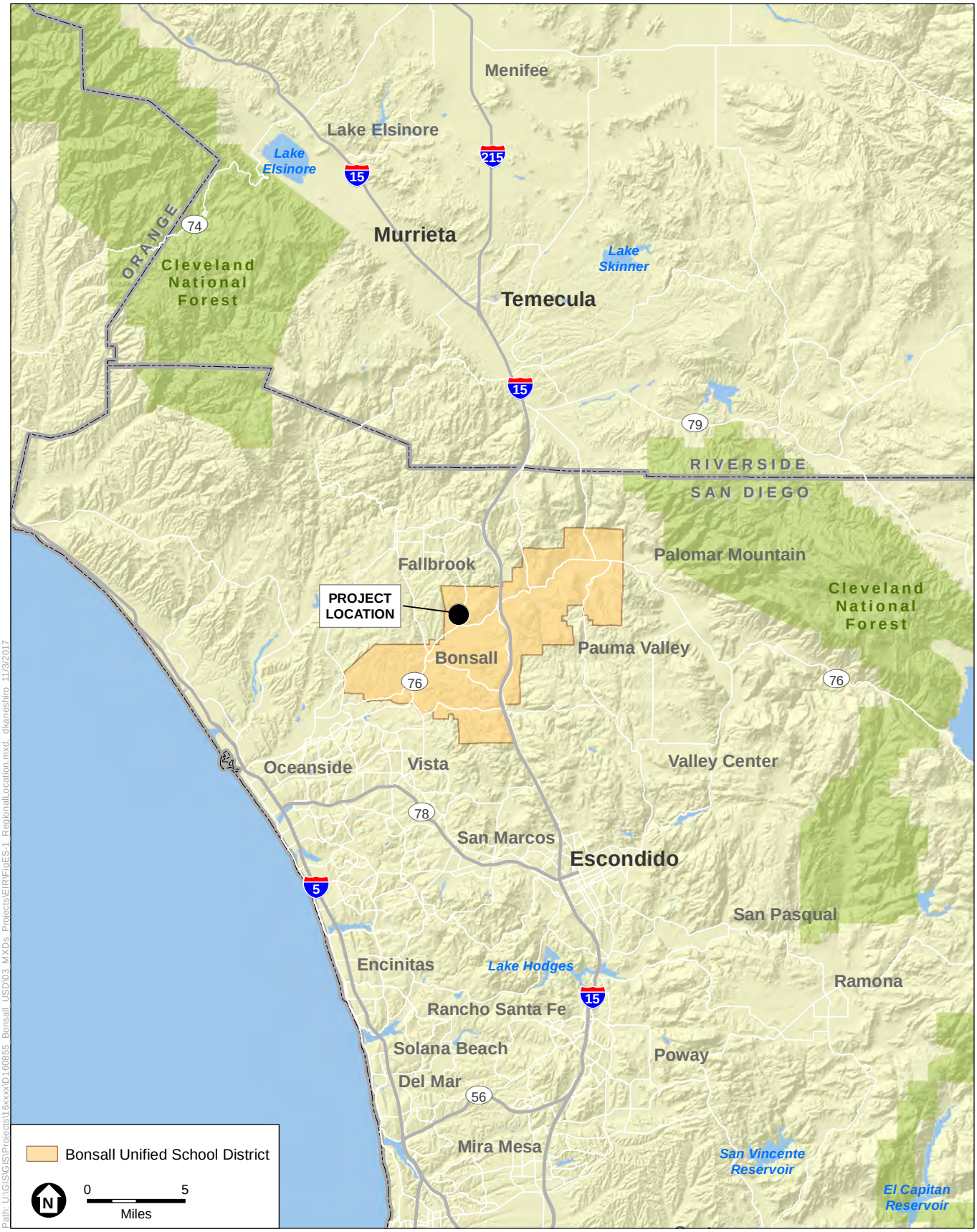
The proposed project involves the construction and operation of a new high school on an undeveloped 48.9-acre site within Bonsall Unified School District (BUSD or District). The overall site area including easements is 50.18 acres. The high school would be for grades 9-12 with a maximum enrollment of 1,500 students, 60 teachers, aides, administrators, and other school personnel. The project would provide approximately 150,500 square feet (sf) of building floor area and 21.4 acres of recreational fields, parking, and landscape/hardscape. Landscaped areas could incorporate horticultural plantings. The proposed buildings include permanent classrooms, administrative offices, media centers, and a gymnasium. The project would include recreational fields and facilities for school, and community use after school hours, weekends, and holidays. Onsite parking would be provided for staff and student vehicles with a 199-space parking area and a bus parking area for up to 12 school buses. **Table ES-1** provides a breakdown of the project components.

All proposed project structures would be developed to a maximum height of 34 feet. Proposed project building elevations would vary up to 34 feet in height, and the final building elevations would be subject to approval of BUSD Board of Trustees as part of the entitlement process.

A passenger pick-up and drop-off area with seat walls (short walls that can function as seating) would be located along the east side of the campus, along the project driveway. The project would include a lunch shelter with an adjacent event space (assembly plaza), mounded lawn with tiered seat walls at the event plaza. The site would include an outdoor collaboration courtyard, fitness pavilion, and arts courtyard. The project would include athletic fields including a running track, soccer field, natural turf playing fields, and a fitness pavilion with asphalt basketball courts.

The buildings would be of modern design and include contemporary features such as corrugated metal siding, fiber cement plank siding, fiber cement panels, aluminum storefront and glazing, corrugated metal roofing, and fiber cement plank screens. Exterior colors would be varied neutral colors of tans, browns, and light blue.

Offsite improvements to Gird Road would be required to add a northbound left turn pocket and associated striping at the project access driveway.



SOURCE: ESRI

Bonsall High School / BUSD

Figure ES-1
Regional Location

ESA

Path: U:\GIS\GIS\Projects\16xxxx\D160855 Bonsall USD\03 MXDs Projects\EIR\FigES-2 Vicinity.mxd dkaneshiro 11/2/2017

SOURCE: ESRI

Bonsall High School / BUSD

Figure ES-2
Vicinity Map

ESA

TABLE ES-1
PROJECT COMPONENTS

Building/Facility	Number of Floors	Ground Area (SF/Acres)	Total Building Area (SF)
Administration/Student Support	1	5,500 sf	5,500 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building & Learning Commons	2	16,200 sf	32,400 sf
Classroom Building – Art, Music, Drama, Food Service	1	17,800 sf	17,800 sf
Gymnasium/Lockers/Support	1	30,000 sf	30,000 sf
Total – Buildings		**3.2 acres/101,900 sf**	**150,500 sf**
Recreational Fields/Track/Field Building	-	3.4 acres	-
Landscape/Hardscape/Sports Courts	-	12.2 acres	-
Parking Lot/Bus Parking/Driveway	-	5.8 acres	-
Total Improvements - Non-Buildings	**-**	**21.4 acres**	**-**
Golf Course Encroachment	-	**1.9 acres**	
Total – Disturbed Area	**-**	**24.6 acres***	**-**
Total – Undisturbed Area	**-**	**22.4 acres***	**-**
Gird Road Offsite Improvements	**-**	**0.1 acres**	**-**

SOURCE: BakerNowicki design studio, 2017
* Does not include existing golf course encroachment area

ES.5 Summary of Impacts

Table ES-2 presents a summary of the impacts and mitigation measures identified in this Draft EIR. The complete impact statements and mitigation measures are presented in Chapter 3. The level of significance for each impact was determined using significance criteria (thresholds) developed for each category of impacts; these criteria are presented in the appropriate sections of Chapter 3. Significant impacts are those adverse environmental impacts that meet or exceed the significance thresholds; less than significant impacts would not exceed the thresholds. Table ES-2 indicates the measures that would avoid, minimize, or otherwise reduce significant impacts to a less than significant.

The proposed project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and would not result in potentially significant or cumulatively considerable hazard impacts to the public or the environment. Potential significant impacts to biological resources, cultural resources, hydrology and water quality, noise and cumulative traffic have been identified. Mitigation measures have been incorporated in this Draft EIR to avoid or minimize impacts associated with these resources to less than significant levels.

TABLE ES-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE BONSALL HIGH SCHOOL PROJECT

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.1 Aesthetics			
Project-Specific Impacts			
Impact 3.1-1: The project would not substantially degrade the existing visual character or quality of the site and its surroundings.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.1-2: The project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	Less than Significant	No mitigation measures are required.	Less than Significant
Cumulative Impacts			
The project would have less than cumulatively considerable impacts to the existing visual character or quality of the site and its surroundings.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts resulting from light and glare.	Less than Significant	No mitigation measures are required.	Less than Significant
3.2 Agricultural Resources			
Project-Specific Impacts			
Impact 3.2-1: The project could convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.	No Impact	No mitigation measures are required.	No Impact
Impact 3.2-2: The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.2-3: The project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Cumulative Impacts			
The project would not have cumulatively considerable impacts from the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would have less than cumulatively considerable impacts regarding conflicts with existing zoning for agricultural use, or a Williamson Act Contract.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would have less than cumulatively considerable effects from conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.	Less than Significant	No mitigation measures are required.	Less than Significant
3.3 Air Quality			
Project-Specific Impacts			
Impact 3.3-1: The project would not conflict with or obstruct implementation of the applicable air quality plan.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.3-2: The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.3-3: The project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.3-4: The project would not expose sensitive receptors to substantial pollutant concentrations.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.3-5: The project would not create objectionable odors affecting a substantial number of people.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Cumulative Impacts			
The project would have less than cumulatively considerable effects on implementation of an applicable air quality plan.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would have less than cumulatively considerable effects and would not violate an air quality standard or contribute substantially to an existing or projected air quality violation.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable effects associated with the exposure of sensitive receptors to substantial pollutant concentrations.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable effects from the creation of objectionable odors affecting a substantial number of people.	Less than Significant	No mitigation measures are required.	Less than Significant
3.4 Biological Resources			
Project-Specific Impacts			
Impact 3.4-1: The project could have significant effects on species because the project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.	Potentially Significant	**BIO-1:** Prior to construction activities, a qualified biologist should conduct a preconstruction survey to determine the presence/absence of any special-status species identify any sensitive biological resources to flag for avoidance. Any reptile species that may be present within the project area shall be relocated outside of the impact areas. **BIO-2:** In addition, if bat species are identified as roosting in areas that will be impacted, prior to construction, the applicant shall prepare a plan to exclude bat species from impact area. If bats cannot be excluded from bat roosts, work activities will be avoided within 100 feet of active maternity roosts until bat pups have been weaned and are volant (i.e. able to fly) by a qualified biologist. **BIO-3:** To avoid any direct impacts to raptors and/or any native/migratory birds, removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of disturbance must occur during the breeding season, the qualified biologist shall conduct a pre-construction survey to determine the presence or absence of nesting birds on the proposed area of disturbance. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). The applicant shall submit the results of the pre-construction survey to the County for review and approval prior to initiating any construction activities. If nesting birds are detected, a letter report or mitigation plan in	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		conformance with the County's Biology Guidelines and applicable state and federal law (i.e. appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report or mitigation plan shall be submitted to the County for review and approval and implemented to the satisfaction of the County. The County shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction.	
Impact 3.4-2: The project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.4-3: The project would not have significant effects on wetlands through direct removal, filling, hydrological interruption, or other means.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.4-4: The project would not interfere substantially with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.4-5: The project could have significant effects on biological resources and could have conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Potentially Significant	**BIO-4:** The project applicant shall either relocate, or replace all impacted oak trees (2) at a 4:1 ratio, with minimum 24-inch box oak trees of the same species as those impacted. Replaced oak trees shall be shown on the final landscape plans.	Less than Significant
Impact 3.4-6: The project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	No Impact	No mitigation measures are required.	No Impact

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Cumulative Impacts			
The project could have cumulatively considerable effects on species.	Potentially Significant	Implementation of Mitigation Measure BIO-1 through BIO-4 is required.	Less than Significant
The project would have less than cumulatively considerable effects on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would have less than cumulatively considerable effects on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would have less than cumulatively considerable effects on the movement of species.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would have less than cumulatively considerable effects on biological resources.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would not have cumulatively considerable effects on a conservation plan because the project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	No Impact	No mitigation measures are required.	No Impact
3.5 Cultural Resources			
Project-Specific Impacts			
Impact 3.5-1: The project could cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.	Potentially Significant	**CUL-1:** Prior to the start of ground-disturbing activities, Bonsall USD shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (U.S. Department of the Interior 2008) to carry out Mitigation Measures CUL-2 through CUL-4. **CUL-2**: Prior to start of ground-disturbing activities, the qualified archaeologist shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, and safety precautions to be taken when working with archaeological monitors. Bonsall USD shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		CUL-3: An archaeological monitor (working under the direct supervision of the qualified archaeologist) shall observe all initial ground-disturbing activities, including but not limited to brush clearance, vegetation removal, grubbing, grading, and excavation. The qualified archaeologist, in coordination with Bonsall USD, may reduce or discontinue monitoring if it is determined that the possibility of encountering buried archaeological deposits is low based on observations of soil stratigraphy or other factors. Archaeological monitoring shall be conducted by an archaeologist familiar with the types of archaeological resources that could be encountered within the project site. The archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of a discovery until the qualified archaeologist has evaluated the discovery and determined appropriate treatment (as prescribed in Mitigation Measure CUL-4). The archaeological monitor shall keep daily logs detailing the types of activities and soils observed, and any discoveries. After monitoring has been completed, the qualified archaeologist shall prepare a monitoring report that details the results of the monitoring. The report shall be submitted to Bonsall USD and any Native American groups who request a copy. A copy of the final report shall be filed at the South Coast Information Center. **CUL-4**: In the event of the unanticipated discovery of archaeological materials, the contractor shall immediately cease all work activities in the area (within approximately 100 feet) of the discovery until it can be evaluated by the qualified archaeologist. Construction shall not resume until the qualified archaeologist has conferred with Bonsall USD on the significance of the resource. If it is determined that the discovered archaeological resource constitutes a historical resource or unique archaeological resource pursuant to CEQA, avoidance and preservation in place shall be the preferred manner of mitigation. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological Resources Treatment Plan shall be prepared and implemented by the qualified archaeologist in consultation with Bonsall USD that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. Bonsall USD shall consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resource, beyond that which is scientifically important, are considered.	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.5-2: The project could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	Potentially Significant	Implementation of Mitigation Measures CUL-1 through CUL-4 is required.	Less than Significant
Impact 3.5-3: The project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially Significant	**CUL-5:** Prior to the start of ground-disturbing activities, Bonsall USD shall retain a qualified paleontologist meeting the standards of the Society for Vertebrate Paleontology (SVP, 2010). The qualified paleontologist shall review all design plans and geotechnical investigations related to the proposed project in order to ascertain where excavation will could impact highly sensitive sediments. **CUL-6:** The qualified paleontologist shall also contribute to any construction worker cultural resources sensitivity training, outlined in Mitigation Measure CUL-2, either in person or via a training module provided to the qualified archaeologist. The training session shall focus on the recognition of the types of paleontological resources that could be encountered within the project site and the procedures to be followed if they are found. **CUL-7**: Full-time paleontological resource monitoring shall be conducted of all ground disturbance in areas identified as highly sensitive by the qualified paleontologist. Paleontological resource monitoring shall be performed by qualified paleontological monitors and/or cross-trained archaeological/paleontological monitors under the direction of the qualified paleontologist. Monitors shall have the authority to temporarily halt or divert work away from exposed fossils in order to recover the fossil specimens. The qualified paleontologist, based on observations of subsurface soil stratigraphy or other factors, may reduce or discontinue monitoring as warranted if the qualified paleontologist determines that the possibility of encountering fossiliferous deposits is low. If fossils are unearthed during construction at a shallower depth than 5 feet, the monitoring program shall be adjusted accordingly. The paleontological monitor shall keep daily logs detailing the types of activities and sediments observed, and any discoveries. The qualified paleontologist shall prepare a final monitoring and mitigation report to be submitted to Bonsall USD. **CUL-8**: In the event of the discovery of paleontological resources, the contractor shall immediately cease all work activities within 50 feet of the discovery, and Bonsall USD shall be contacted immediately. The qualified paleontologist shall evaluate the significance of the find and if it is determined that the discovery constitutes a significant resource under CEQA, a Paleontological Resources Treatment Plan shall be prepared and implemented by the qualified paleontologist in consultation with Bonsall USD. Paleontological materials recovered during any investigation shall be curated at an accredited curational facility. The report(s) documenting the implementation of the Paleontological Resources Treatment Plan shall be submitted to Bonsall USD.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.5-4: The project could disturb any human remains, including those interred outside of dedicated cemeteries.	Potentially Significant	**CUL-9**: If human remains are encountered, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the San Diego County Coroner has made the necessary findings as to origin. Further, pursuant to PRC Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the San Diego County Coroner determines the remains to be Native American, the California Native American Heritage Commission must be contacted within 24 hours. The California Native American Heritage Commission must then immediately identify the Most Likely Descendent upon receiving notification of the discovery. The Most Likely Descendent shall then make recommendations within 48 hours of being granted access and engage in consultation concerning the treatment of the remains as provided in PRC Section 5097.98.	Less than Significant
Cumulative Impacts			
The project could have cumulatively considerable effects on historical resources.	Potentially Significant	Implementation of Mitigation Measures CUL-1 through CUL-4 is required.	Less than Significant
The project could have cumulatively considerable effects on archaeological resources.	Potentially Significant	Implementation of Mitigation Measures CUL-1 through CUL-4 is required.	Less than Significant
The project could have cumulatively considerable effects on paleontological resources.	Potentially Significant	Implementation of Mitigation Measures CUL-5 through CUL-8 is required.	Less than Significant
The project could have cumulatively considerable effects on human remains.	Potentially Significant	Implementation of Mitigation Measure CUL-9 is required.	Less than Significant
3.6 Energy			
Project-Specific Impacts			
Impact 3.6-1: The project would not conflict with adopted energy conservation plans.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.6-2: The project would not violate state or federal energy standards.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.6-3: The project would not result in the wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and/or maintenance.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.6-4: The project would not result in an increase in demand for electricity or natural gas that exceeds available supply or distribution infrastructure capabilities; and therefore, would not result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than Significant	No mitigation measures are required.	Less than Significant
Cumulative Impacts			
The project would result in less than cumulatively considerable impacts regarding energy conservation plans.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts related to conflicts with adopted energy conservation plans.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts regarding the wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and/or maintenance.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts related to increase in demand for electricity or natural gas that exceeds available supply or distribution infrastructure capabilities.	Less than Significant	No mitigation measures are required.	Less than Significant
3.7 Geology, Soils, and Seismicity			
Project-Specific Impacts			
Impact 3.7-1: The project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.7-2: The project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.7-3: The project would not result in substantial soil erosion or the loss of topsoil.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.7-4: The project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and would not result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.7-5: The project would not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), and would not create substantial risks to life or property.	Less than Significant	No mitigation measures are required.	Less than Significant
Cumulative Impacts			
The project would result in less than cumulatively considerable impacts and would not result in the expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts regarding the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts regarding substantial soil erosion or the loss of topsoil.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts regarding unstable soils, off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts form expansive soils.	Less than Significant	No mitigation measures are required.	Less than Significant
3.8 Greenhouse Gas Emissions			
Project-Specific Impacts			
Impact 3.8-1: The project would not generate greenhouse gas emissions, either directly or indirectly, and would not have a significant impact on the environment.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.8-2: The project would not conflict with any applicable plan, policy, regulation, or recommendation of an agency adopted for the purpose of reducing the emissions of GHGs.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Cumulative Impacts			
The project would result in less than cumulatively considerable effects regarding the generation of greenhouse gas emissions, either directly or indirectly.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts regarding applicable plans, policies, regulations, or recommendations of an agency adopted for the purpose of reducing the emissions of GHGs.	Less than Significant	No mitigation measures are required.	Less than Significant
3.9 Hydrology and Water Quality			
Project-Specific Impacts			
Impact 3.9-1: The project could violate water quality standards or waste discharge requirements.	Potentially Significant	**HYDRO-1:** The project shall implement the proposed four (4) stormwater detention and filtration basins to control stormwater runoff, meet hydromodification requirements and to meet storm water quality objectives. During excavation, dewatered groundwater shall not come into contact with construction chemicals of any. All dewatered groundwater collected shall be collected and securely stored in closed containers onsite. All dewatered groundwater shall be tested for potential contaminants as specified by San Diego State Regional Water Quality Control Board Waste Discharge Requirements Conditional Waiver No. 2. If contaminants are detected, dewatered groundwater must be treated onsite prior to its eventual recharge onsite back into the groundwater basin. During the dry season and following both the completion of excavation activities and completion of the proposed stormwater quality basins, dewatered groundwater shall be discharged to the stormwater quality basins for infiltration back into the groundwater basin. Depending on how much groundwater is dewatered, up to all four stormwater quality basins may be used at a time for infiltration.	Less than Significant
Impact 3.9-2: The project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.9-3: The project would not substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation or flooding on-or off-site.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.9-4: The project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.9-5: The project could otherwise substantially degrade water quality.	Potentially Significant	Implementation of Mitigation Measure HYDRO-1 is required.	Less than Significant
Impact 3.9-6: The project would not place housing or structures which would impede or redirect flood flows within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.	No impact	No mitigation measures are required.	No Impact
Impact 3.9-7: The project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	No impact	No mitigation measures are required.	No Impact
Impact 3.9-8: The project would not expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.	No impact	No mitigation measures are required.	No Impact
Cumulative Impacts			
The project could result in cumulatively considerable impacts because regarding the violation of water quality standards or waste discharge requirements.	Potentially Significant	Implementation of Mitigation Measure HYDRO-1 is required.	Less than Significant
The project would result in less than cumulatively considerable impacts regarding the depletion of groundwater supplies.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts to existing drainage, including the alteration of the course of a stream or river.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts to stormwater drainage systems or of polluted runoff.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts because the project would not substantially degrade water quality.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
The project would not result in cumulatively considerable impacts because the project would not place housing or structures which would impede or redirect flood flows within a 100-year flood hazard area.	No impact	No mitigation measures are required.	No Impact
The project would not result in cumulatively considerable impacts regarding the loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	No impact	No mitigation measures are required.	No Impact
The project would not result in cumulatively considerable impacts regarding the loss, injury or death involving inundation by seiche, tsunami, or mudflow.	No impact	No mitigation measures are required.	No Impact
3.10 Land Use and Planning			
Project-Specific Impacts			
Impact 3.10-1: The project would not physically divide an established community.	No Impact	No mitigation measures are required.	No Impact
Impact 3.10-2: The project would not impact an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project.	No Impact	No mitigation measures are required.	No Impact
Impact 3.10-3: The project would not conflict with any applicable habitat conservation plan or natural community conservation plan.	No Impact	No mitigation measures are required.	No Impact
Cumulative Impacts			
The project would not result in cumulatively considerable impacts to an established community.	No Impact	No mitigation measures are required.	No Impact
The project would not result in cumulatively considerable impacts regarding an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project.	No Impact	No mitigation measures are required.	No Impact
The project would not result in cumulatively considerable impacts regarding the confliction with an applicable habitat conservation plan or natural community conservation plan.	No Impact	No mitigation measures are required.	No Impact

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.11 Noise			
Project-Specific Impacts			
Impact 3.11-1: The project could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Potentially Significant	**NOISE-1:** School bells shall be installed in locations where line-of-sight is blocked from neighboring residential uses. School bells shall not be installed on the façade of any proposed building that has direct line-of-site to the property boundary.	Less than Significant
Impact 3.11-2:.The project would not result in exposure of persons to, or generation of, excessive groundborne vibration.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.11-3: The project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.11-4: The project could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	Potentially Significant	**NOISE-2:** During project construction, all construction equipment, fixed or mobile, shall be operated with closed engine doors, if so equipped, and shall include properly operating and maintained residential-grade mufflers consistent with manufacturers' standards.	Less than Significant
Cumulative Impacts			
The project would result in less than cumulatively considerable impacts to noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts regarding excessive groundborne vibration.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts regarding substantial permanent increase in ambient noise levels.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable impacts regarding temporary or periodic increase in ambient noise levels.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.12 Public Services			
Project-Specific Impacts			
Impact 3.12-1(i): The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire department facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.12-1(ii): The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered Sheriff department facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.12-1(iii): The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools.	Less than Significant	No mitigation measures are required.	Less than Significant
Cumulative Impacts			
The project would result in less than cumulatively considerable adverse physical impacts associated with the provision of new or physically altered fire department facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in less than cumulatively considerable adverse physical impacts associated with the provision of new or physically altered Sheriff department facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
The project would result in less than cumulatively considerable adverse physical impacts associated with the provision of new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools.	Less than Significant	No mitigation measures are required.	Less than Significant
3.13 Transportation and Traffic			
Project-Specific Impacts			
Impact 3.13-1: The project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.13-2: The project would not conflict with an applicable congestion management program including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.	No Impact	No mitigation measures are required.	No Impact
Impact 3.13-3: The project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	No Impact	No mitigation measures are required.	No Impact
Impact 3.13-4: The project would not substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment).	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.13-5: The project would not result in inadequate emergency access.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.13-6: The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Cumulative Impacts			
The project could result in cumulatively considerable impacts regarding the confliction with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	Potentially Significant	**TT-1:** The Bonsall Unified School District would contribute fair-share funding through the County of San Diego Transportation Impact Fee program to the following improvements to the Old River Road [West] / Camino Del Rey intersection: • Convert existing "Y" intersection into a "T" intersection • Add an auxiliary at the west leg to allow two-stage movement from the minor street The identified improvement is listed in the County's Five-Year Capital Improvement Plan 2016/17 to 2020/21, and Transportation Impact Fee program.	Less than Significant
The project would not result in cumulatively considerable impacts regarding the confliction with an applicable congestion management program including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.	No Impact	No mitigation measures are required.	No Impact
The project would not result in cumulatively considerable impacts regarding air traffic patterns.	No Impact	No mitigation measures are required.	No Impact
The project would not result in cumulatively considerable impacts regarding hazards due to a design feature.	No Impact	No mitigation measures are required.	No Impact
The project would not result in cumulatively considerable impacts regarding inadequate emergency access.	No Impact	No mitigation measures are required.	No Impact
The project would not result in cumulatively considerable impacts regarding the confliction with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities	No Impact	No mitigation measures are required.	No Impact

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.14 Tribal Cultural Resources			
Project-Specific Impacts			
Impact 3.14-1: The project would not result in a substantial adverse change in the significance of a tribal cultural resource and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(l).	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.14-2: The project would not result in a substantial adverse change in the significance of a tribal cultural resource that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1.	Less than Significant	No mitigation measures are required.	Less than Significant
Cumulative Impacts			
The project would result in a less than cumulatively considerable adverse change in the significance of a tribal cultural resource and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(l).	Less than Significant	No mitigation measures are required.	Less than Significant
The project would result in a less than cumulatively considerable adverse change in the significance of a tribal cultural resource that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
3.15 Utilities			
Project-Specific Impacts			
Impact 3.15-1: The project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.15-2: The project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.15-3: The project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.15-4: The project would not require new or expanded water supply resources or entitlements.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.15-5: The project would not result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the projects projected demand in addition to the provider's existing commitments.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.15-6: The project could be served by a landfill with insufficient permitted capacity to accommodate the project solid waste disposal needs.	Less than Significant	No mitigation measures are required.	Less than Significant
Impact 3.15-7: The project would comply with federal, state and local statutes and regulations related to solid waste.	Less than Significant	No mitigation measures are required.	Less than Significant
Cumulative Impacts			
The project would not result in cumulatively considerable impacts regarding wastewater treatment requirements of the applicable Regional Water Quality Control Board.	Less than Significant	No mitigation measures are required.	Less than Significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
The project would not result in cumulatively considerable impacts resulting from the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would not result in cumulatively considerable impacts regarding storm water drainage facilities or expansion of existing facilities.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would not result in cumulatively considerable impacts regarding new or expanded water supply resources or entitlements.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would not result in cumulatively considerable impacts regarding wastewater treatment capacity.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would not result in cumulatively considerable impacts to landfills.	Less than Significant	No mitigation measures are required.	Less than Significant
The project would not result in cumulatively considerable impacts regarding solid waste regulations.	Less than Significant	No mitigation measures are required.	Less than Significant

ES.6 Areas of Known Controversy

Pursuant to Section 15123(b)(2) of the *CEQA Guidelines,* a lead agency is required to include areas of controversies raised by agencies and the public during the public scoping process in the EIR. Areas of controversy have been identified for this Draft EIR based on comments made during the 30-day public review period in response to information published in the NOP. Commenting parties have expressed concern for visual impacts, traffic, incompatible land uses, wildfire potential, and noise. These issues have been considered during preparation of this Draft EIR.

ES.7 Significant Irreversible Environmental Changes

CEQA Guidelines 21100(b)(2) and 15126.2(b) require that any significant effect on the environment that would be irreversible if the proposed project is implemented must be identified. Construction and operation of the proposed project would require the use and consumption of nonrenewable resources, such as steel and other metals. Renewable resources, such as lumber and other wood byproducts, would also be used. Unlike renewable resources, nonrenewable resources cannot be regenerated over time. Construction of high school facilities would require the commitment of a relatively small amount of building materials. The small quantity of building materials used during implementation of proposed project would result in a less than significant impact because these types of resources are anticipated to be in adequate supply into the foreseeable future.

Energy would be consumed during both construction and operation of the proposed project. Nonrenewable resources and energy would also be consumed during the manufacturing and transportation of building materials, preparation of the site, and construction and site restoration activities. The proposed project would not result in the wasteful, inefficient or unnecessary consumption of energy during construction or operation. The proposed project would result in the irretrievable and irreversible commitment of energy resources in the form of diesel fuel, gasoline and electricity during construction and operation. However, these types of resources are anticipated to be in adequate supply into the foreseeable future. Further, the proposed project would implement energy efficient facilities such as Energy Pro heating, ventilation, and air conditioning systems and a campus wide energy management system (EMS), which manages design features such as landscape irrigation and photocell activation of exterior lighting. These energy management systems and project design features would reduce potential significant impacts regarding energy use to less than significant levels. Therefore, impacts due to these irretrievable and irreversible commitments of resources are considered less than significant.

ES.8 Project Alternatives

The No Project Alternative and two project alternative scenarios, representing a range of reasonable alternatives to the proposed project, were selected for detailed analysis. The goal for evaluating these alternatives is to identify ways to avoid or lessen the significant environmental effects resulting from implementation of the proposed project, while attaining most of the project objectives. The following provides a summary of each of the alternatives analyzed. More detailed

descriptions of each of the alternatives is provided in the introductions to Sections 5.6 through 5.8.

- **Alternative 1: No Project/No Build Alternative,** in which no project or project alternative would be adopted. The project site would remain as it is in existing conditions. The site would remain vacant and no high school would be developed.
- **Alternative 2: No Project/Development in Accordance with the General Plan.** The project site is currently served by available water service and can feasibly connect to other available utilities. The project site is served by supporting public services. The project site is accessible by existing regional and local roadways, and areas around the project site are developed with residential, recreational, and commercial uses.

  The project site is located within the Fallbrook Community Plan, and has a Public/Semi-Public Facilities General Plan Land Use designation. The project site is zoned Limited Agricultural (A70). This land use designation is intended to accommodate uses such as institutional uses, academic facilities, governmental complexes, and community service facilities, such as County airports, public schools, correction institutions, solid waste facilities, water facilities, and sewer facilities. A maximum FAR of 0.50 is permitted by this designation.

  Given the project site's Public/Semi-Public Facilities General Plan Land Use designation; availability of infrastructure/services, lack of physical constraints; and accessibility, it is unlikely that the project site would remain vacant or in a "No Build" condition indefinitely. Failure to proceed with the proposed project would likely not result in preservation of existing environmental conditions, and the practical result of the project's non-approval would be the development of another type or configuration of Public/Semi-Public Facilities uses within the project site that are consistent with the general plan land use designations and zoning. If that future development were to occur, the impacts of the no project/reasonably foreseeable development could be substantially similar or greater than the proposed project, depending on the final land use.
- **Alternative 3: Phase 1 Only,** in which only Phase 1 of the proposed high school would be developed. Phase 1 includes development of the administration building, food service building, locker rooms, one academic building, gymnasium areas, soccer field, basketball hardcourts, and parking.

Section 5.8 provides a comparative summary of the alternatives, including a summary of the ability of the alternatives to meet the project objectives and a summary comparison of the potential impacts associated with the alternatives and the proposed project.

ES.9 Organization of this EIR

This Draft EIR is organized into the following chapters and appendices:

S. Executive Summary. The summary provides a synopsis of the project's potential impacts. It identifies, in an overview fashion, the project under consideration and its objectives. The section also summarizes the project's impacts and mitigation measures and contains a summary analysis of the alternatives to the project.

1. Introduction. The introduction includes the purpose of an EIR and procedural information.

2. **Project Description.** The project description includes the project background, project location and setting, site characteristics, project objectives, and the characteristics of the project. The section also includes a summary of the necessary permits and approvals for the project.
3. **Environmental Setting, Impacts, and Mitigation Measures.** This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Air Quality; Agricultural Resources, Biological Resources, Cultural Resources, Energy, Geology and Soils, Greenhouse Gas Emissions, Hydrology and Water Quality, Land Use and Planning, Noise, Public Services, Transportation and Traffic, and Utilities. Mitigation measures to reduce significant impacts of the proposed project to the lowest level feasible are presented for each resource area. This section also provides an analysis of the cumulative impacts for each issue area analyzed in this Draft EIR.
4. **Other CEQA Considerations.** This chapter provides an analysis of the extent to which the project's primary and secondary effects would commit resources to uses that future generations would probably be unable to reverse. This chapter also discusses the resource areas determined to have no impact with implementation of the project.
5. **Alternatives Analysis.** This chapter presents an overview of the alternatives development process and describes and analyzes the alternatives to the project, including the No Project Alternative.
6. **Report Preparation.** This chapter provides a list of the individuals who contributed to the preparation of this Draft EIR.
7. **Appendices.** The appendices contain important information used to support the analyses and conclusions made in this Draft EIR. Appendices are provided documenting the scoping process, air emissions modeling results, biological resources assessment, cultural resources assessment, greenhouse gas emissions estimate, geotechnical evaluation, Phase I Environmental Site Assessment, noise and vibration modeling results, traffic impact assessment, and energy consumption modeling results.

CHAPTER 1
Introduction

1.1 Purpose of the EIR

The Bonsall Unified School District (BUSD) is proposing to develop a new high school facility to serve existing and future high school-aged students within the BUSD boundary. BUSD high school students in grades 9, 10, 11 and 12 are currently located in a two story building and portable classrooms on a portion of the Sullivan Middle School site. Current high school enrollment is 328 students and hgh school enrolment projections associated with existing and new residential development projects are contained in the School Facilities Needs/Alternative Site Analysis (**Appendix T**). The existing Sullivan Middle School campus cannot accommodate the typical range of high school facilities and programs.

The proposed project would construct a new high school for grades 9-12 with a maximum enrollment of 1,500 students and a maximum of 60 staff (teachers, aides, administrators, and other school personnel). The project would provide approximately 150,500 square feet of building floor area and approximately 21.4 acres of recreational fields, hardcourts, parking, and landscape/hardscape on the 48.9-acre project site. 22.4 acres of the project site will remain as undisturbed natural open space. To implement the proposed project, certification of this Environmental Impact Report (EIR) and site plan approval would be required. BUSD, as the lead agency, has prepared this Draft EIR to provide the public, trustee agencies, and responsible agencies with information about the potential effects on the local environment associated with the implementation of the proposed new high school (proposed project, or project).

1.2 Intended Use of this Draft EIR

This Draft EIR is an information document that is intended to inform public agency decision makers and the public of the environmental effects of the proposed project and potential mitigation for those effects. This Draft EIR analyzes the environmental effects of the proposed project at a project level. In addition, this Draft EIR describes a reasonable range of alternatives to the project. As described in the California Environmental Quality Act (CEQA) Guidelines Section 15161, a project EIR is used to examine the impacts of a specific development project, focusing on changes to the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation. Accordingly, this Draft EIR has been prepared as a project-level EIR and analyzes the specific environmental impacts that could be associated with construction and operation of the proposed project.

1.3 CEQA Environmental Review Process

1.3.1 CEQA Process Overview

This Draft EIR has been prepared in compliance with CEQA (as amended), codified as California Public Resources Code Sections 21000 et seq. and the State CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3. The basic purposes of CEQA are to: (1) inform decision makers and the public about the potential, significant environmental effects of proposed activities, (2) identify the ways that environmental effects can be avoided or significantly reduced, (3) prevent significant, avoidable environmental effects by requiring changes in projects through the use of alternatives or mitigation measures when feasible, and (4) disclose to the public the reasons why an implementing agency may approve a project even if significant unavoidable environmental effects are involved.

An EIR uses a multidisciplinary approach, applying social and natural sciences to make a qualitative and quantitative analysis of all the foreseeable environmental impacts that a proposed project would exert on the surrounding area. As stated in CEQA Guidelines Section 15151:

> *An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.*

As described in Section 15121(a) of the CEQA Guidelines, this Draft EIR is intended to serve as an informational document for public agency decision makers. Accordingly, this Draft EIR has been prepared to identify and disclose the significant environmental effects of the proposed project, identify mitigation measures to minimize significant effects, and consider reasonable project alternatives. The environmental impact analyses in this Draft EIR are based on a variety of sources, including agency consultation, technical studies, and field surveys. BUSD will consider the information presented in this Draft EIR, along with other information presented to decision makers, prior to approving the proposed project.

1.3.2 Notice of Preparation and Public Scoping

Pursuant to Section 15082 of the CEQA Guidelines, the lead agency is required to send a Notice of Preparation (NOP) stating that a Draft EIR will be prepared to the state Office of Planning and Research (OPR), responsible and trustee agencies, and federal agencies involved in funding or approving the project. The NOP must provide sufficient information for responsible agencies to make a meaningful response. At a minimum, the NOP must include a description of the project, location of the project, and probably environmental effects of the project (CEQA Guidelines Section 15082(a)(1)). Within 30 days after receiving the NOP, responsible and trustee agencies and the OPR shall provide the lead agency with specific detail about the scope and content of the environmental information related to that agency's area of statutory responsibility that must be included in the Draft EIR (CEQA Guidelines Section 15082(b)).

On May 25, 2017, in accordance with Sections 15063 and 15082 of the CEQA Guidelines, BUSD published a NOP for this Draft EIR and circulated it to governmental agencies, organizations, and persons who may be interested in the proposed project, including nearby landowners, homeowners, and tenants. The NOP requested comments on the scope of the Draft EIR and asked that those agencies with regulatory authority over any aspect of the project to describe that authority. The comment period closed on June 26, 2017. The NOP provided a general description of the proposed actions, a description of the project area, and a preliminary list of potential environmental impacts.

On June 14, 2017, in accordance with CEQA Section 21083.9[1], BUSD sponsored a public meeting to obtain comments from interested parties on the scope of the Draft EIR. The purpose of the meeting was to present the project to the public through use of display maps, diagrams, and a presentation describing the project components and potential environmental impacts. BUSD staff and members of the local community attended the scoping meeting. Attendees were provided an opportunity to voice comments or concerns regarding potential effects of the project. The issues addressed by participants are summarized and included in this Draft EIR as part of **Appendix A**. Six comment letters were received in response to the NOP. Specific environmental concerns that were raised in the comments received on the NOP are discussed in **Table 1-1**, below.

TABLE 1-1
SUMMARY OF NOP COMMENTS

Commenter/Date	Summary of Environmental Issues Raised in Comment Letters	Applicable Draft EIR Sections
Notice of Preparation – May 25, 2017		
Agencies		
State Clearinghouse May 26, 2017	This is a letter to reviewing agencies that provides a reminder to comment on the proposed project in a timely manner.	-
U.S. Fish and Wildlife Service and California Department of Fish and Wildlife	Habitat communities on the site that have the potential to support federally and/or state listed species. Impacts to the San Luis Rey River to the south including potential modification of run-off patterns and discharge of pollutants. Wetlands and Riparian Habitats	Section 3.4, Biological Resources Section 3.9 Hydrology and Water Quality
Native American Heritage Commission (NAHC) June 1, 2017	Provides AB52 Tribal consultation requirements for CEQA and impacts to Tribal Cultural Resources Provides Native American Heritage Commission (NAHC) recommendations for Cultural Resources Assessments	Section 3.5, Cultural Resources Section 3.14, Tribal Cultural Resources
California Department of Transportation (Caltrans) June 2, 2017	The commenter makes suggestions as to what elements are to be addressed in traffic studies.	Section 3.13, Transportation and Traffic Appendix Q, Traffic Report
County of San Diego Planning & Development Services June 27, 2017	Consistency with adopted plans, policies, and regulations Watershed	Section 3.2, Agricultural Resources Section 3.4, Biological Resources

[1] CEQA Section 21083.9 requires that a lead agency call at least one scoping meeting for a project of statewide, regional, or areawide significance.

Commenter/Date	Summary of Environmental Issues Raised in Comment Letters	Applicable Draft EIR Sections
	Transportation and Traffic – concerns regarding site access and guidance on the elements of the Traffic Impact Analysis Hazardous Materials Vector Control	Section 3.9, Hydrology and Water Quality Section 3.10, Land Use and Planning Section 3.13, Transportation and Traffic Chapter 4, Other CEQA Considerations
Individuals		
Save Gird Valley June 26, 2017	Sensitive Species: Arroyo Toad Tributaries to the San Luis Rey River Light Pollution Noise Scenic Corridor and view sheds Fire safety Traffic flow/pedestrian safety Alternatives – Alternative sites Non-compliance with community plans	Section 3.1, Aesthetics Section 3.4 Biological Resources Section 3.7 Hydrology and Water Quality Section 3.10, Land Use and Planning Section 3.11, Noise Section 3.12, Public Services Section 3.13, Transportation and Traffic Chapter 4, Other CEQA Considerations
Scoping Meeting – June 14, 2017		
Individuals		
Jack Wood	Sensitive environmental issues and traffic concerns	Section 3.13, Transportation and Traffic
Therese Platte	Biological Resources Consistency with existing General Plan designation and zoning Lighting Fire safety and site access	Section 3.1, Aesthetics Section 3.4 Biological Resources Section 3.7 Hydrology and Water Quality Section 3.10, Land Use and Planning Section 3.11, Noise Section 3.12, Public Services Section 3.13, Transportation and Traffic Chapter 4, Other CEQA Considerations

1.3.3 Draft EIR

This Draft EIR has been prepared pursuant to the requirements of CEQA Guidelines Section 15126. The environmental issues addressed in this Draft EIR were established through review of environmental documentation developed for the project, environmental documentation for nearby project, and public and agency responses to the NOP. This Draft EIR provides an analysis of reasonably foreseeable impacts associated with the construction and operation of the proposed project. The environmental baseline for determining potential impacts is the date of publication of

the NOP for the proposed project (CEQA Guidelines Section 15125(a)). Unless otherwise indicated, the environmental setting for each resource assessed in this Draft EIR describes the existing conditions as of May 2017. The impact analysis is based on changes to existing conditions that would result from implementation of the proposed project.

In accordance with the CEQA Guidelines Section 15126, this Draft EIR describes the proposed project and the existing environmental setting, identifies environmental impacts associated with project implementation, identifies mitigation measures for significant impacts, and provides an analysis of alternatives. Significance criteria have been developed for each environmental resource analyzed in this Draft EIR. The significance criteria are defined at the beginning of each impact analysis section.

1.3.4 Public Review

In accordance with CEQA Guidelines Section 15105, this Draft EIR is being circulated and made available to local, state, and federal agencies, and to interested organizations and individuals who may wish to review and comment on the Draft EIR during the 45-day review period. All written comments should be directed to:

David Medcalf, Director of Facilities, Maintenance and Transportation
Bonsall Unified School District
31505 Old River Road
Bonsall, California 92003

Comments on the Draft EIR must be received by close of business on the last day of the 45-day review period unless BUSD grants an extension.

1.3.5 Final EIR Publication and Certification

Written and oral comments received in response to the Draft EIR will be addressed in a Response to Comments document that, together with the Draft EIR, will constitute the Final EIR. BUSD will then consider EIR certification (CEQA Guidelines Section 15090). If the EIR is certified, BUSD may consider project approval. Prior to approving the project, the BUSD must make written findings with respect to each significant environmental effect identified in the Draft EIR in accordance with Section 15091 of the CEQA Guidelines. In addition, BUSD must adopt a Statement of Overriding Considerations concerning each unmitigated significant environmental effect identified in the Final EIR (if any). The Statement of Overriding Considerations will be included in the record of the project's approval and mentioned in the Notice of Determination (NOD) following CEQA Guidelines Section 15093(c). Pursuant to Section 15094 of the CEQA Guidelines, BUSD will file a NOD with the State Clearinghouse and San Diego County Clerk within five working days after project approval.

1.3.6 Mitigation Monitoring and Reporting Program

CEQA requires lead agencies to "adopt a reporting and mitigation monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to

mitigate or avoid significant effects on the environment" (CEQA Guidelines Section 15097). The mitigation monitoring program will be available to the public at the same time as the Final EIR.

1.4 Organization of the Draft EIR

This Draft EIR is organized into the following chapters and appendices:

S. Executive Summary. The summary provides a synopsis of the project's potential impacts. It identifies, in an overview fashion, the project under consideration and its objectives. The section also summarizes the project's impacts and mitigation measures and contains a summary analysis of the alternatives to the project.

1. Introduction. The introduction includes the purpose of an EIR and procedural information.

2. Project Description. The project description includes the project background, project location and setting, site characteristics, project objectives, and the characteristics of the project. The section also includes a summary of the necessary permits and approvals for the project.

3. Environmental Setting, Impacts, and Mitigation Measures. This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Air Quality; Agricultural Resources, Biological Resources, Cultural Resources, Energy, Geology and Soils, Greenhouse Gas Emissions, Hydrology and Water Quality, Land Use and Planning, Noise, Public Services, Transportation and Traffic, and Utilities. Mitigation measures to reduce significant impacts of the proposed project to the lowest level feasible are presented for each resource area. This section also provides an analysis of the cumulative impacts for each issue area analyzed in the Draft EIR.

4. Other CEQA Considerations. This chapter provides an analysis of the extent to which the project's primary and secondary effects would commit resources to uses that future generations would probably be unable to reverse. This chapter also discusses the resource areas determined to have no impact with implementation of the project.

5. Alternatives Analysis. This chapter presents an overview of the alternatives development process and describes and analyzes the alternatives to the project, including the No Project Alternative.

6. Report Preparation. This chapter provides a list of the individuals who contributed to the preparation of the Draft EIR.

7. Appendices. The appendices contain important information used to support the analyses and conclusions made in the FEIR. Appendices are provided documenting the scoping process, air emissions modeling results, biological resources assessment, cultural resources assessment, greenhouse gas emissions estimate, noise and vibration modeling results, traffic impact assessment, and energy consumption modeling results.

CHAPTER 2
Project Description

2.1 Introduction

The purpose of the project description is to describe the project in a way that will be meaningful to the public, reviewing agencies, and decision makers. This project description provides information pertaining to the new Bonsall High School (proposed project). As described in Section 15124 of the California Environmental Quality Act (CEQA) Guidelines, the project description in an EIR is required to contain the following information: (1) the location of the proposed project; (2) a statement of project objectives; (3) a general description of the project's technical, economic, and environmental characteristics; and (4) a statement briefly describing the intended uses of the EIR. The State CEQA Guidelines state that a project description need not be exhaustive, but should provide the level of detail needed for the evaluation and review of potential environmental impacts.

Bonsall High School currently serves grades 9, 10, 11 and 12, and shares campus space with Sullivan Middle School. Bonsall High School, has a current enrollment of 328 students and operates out of a single two-story building and four portable classrooms. The high school shares food service, athletic fields/facilities and parking with Sullivan Middle School. Expansion of Bonsall High School in its current location on the Sullivan Middle School campus has been determined to be infeasible due to physical site constraints. Anticipated high school student population growth requires that a new high school be constructed on a stand-alone site which can accommodate typical high school facilities and programs.

The proposed project involves the construction and operation of a new high school on an undeveloped 48.9-acre site within Bonsall Unified School District (BUSD or District). The overall site area including easements is 50.18 acres. The high school would be for grades 9-12 with a maximum enrollment of 1,500 students, 60 teachers, aides, administrators, and other school personnel. The project would provide about 150,500 square feet (sf) of building floor area and about 21.4 acres of recreational fields, parking, and landscape/hardscape. The proposed buildings include permanent classrooms, administrative offices, media centers, and gymnasium. The project would include recreational fields and facilities for school, and community use after school hours, weekends, and holidays. Onsite parking would be provided for staff and student vehicles with a 199-space parking area and a bus parking area for up to 12 school buses.

Offsite improvements are required on Gird Road to accommodate a northbound left turn pocket and associated striping at the project access driveway.

2.2 Project Location

The 48.9-acre project site is located within the unincorporated community of Fallbrook in the north-central portion of San Diego County (Figure ES-1). The project is located within Assessor Parcel Number (APN) 124-340-3400 approximately 0.30-miles north of the intersection of State Route 76 (SR 76) and Gird Road (Figure ES-2). Specifically, the project is located in an unsectioned portion of Township 10 South, Range 3 West on the Bonsall USGS 7.5-minute topographic quadrangle.

2.3 Existing Setting

2.3.1 Existing Land Use

The project site is currently vacant undeveloped land covered by non-native grasses, riparian habitat, eucalyptus woodland, oak trees, barren areas with exposed sandy soils, and minor drainages. The site topography ranges in elevation from 265-288 feet above mean sea level (amsl) (see Figure 3.1-1 in Section 3.10, *Land Use and Planning*) and generally slopes to the southeast. The project site is located within the Fallbrook Community Plan, and has a Public/Semi-Public Facilities General Plan Land Use designation as shown on Figure 3.10-2 in Section 3.10, *Land Use and Planning*. The project site is zoned Limited Agricultural (A70) (see Figure 3.10-3 in Section 3.10, *Land Use and Planning).*

2.3.2 Surrounding Land Uses

Land uses surrounding the project site include the following and are shown in Figure 3.10-1 in Section 3.10, *Land Use and Planning* of this Draft EIR:

- **North:** Single family residential uses are located immediately to the north.
- **East:** Gird Road is immediately east of the project site. The properties to the east are used for agricultural operations and have a land use designation for Semi-Rural Residential and are zoned for Agriculture.
- **South:** The property immediately to the south is a golf course. State Route 76 is located south of the golf course.
- **West:** The property immediately to the west is a golf course and club house.

2.4 Project Objectives

CEQA Guidelines Section 15124 requires an EIR to include a statement of objectives sought by the proposed project. The objectives assist in developing the range of project alternatives to be evaluated in the EIR. BUSD has established the following objectives for the proposed project:

- Design and construct the high school to avoid or minimize impacts to sensitive environmental resources and the surrounding community. Minimize impacts to the regional circulation system. Construct a public high school campus to accommodate the anticipated growth in the BUSD high student population and relieve overcrowding of high school students over the next 20 years.

- Allow for continued growth in the middle school student population and associated educational facilities at the existing Sullivan Middle School.

- Allow for phased construction of the high school campus in accordance with student population growth projections and available construction funding from local sources as well as the District's eligibility for potential State Bond Funding from Proposition 51 in the approximate amount of $9 Million.

- Minimize required student transportation and staff commuting distances by centrally locating the high school campus within BUSD not more than 1/4 mile from an arterial or collection road.

- Locate the high school campus on a site that is large enough to accommodate anticipated growth in the BUSD high school population and typical high school facilities and programs (25-60 acres) pursuant to the California Department of Education school site selection criteria, proximate to available utilities, outside of a flood plain or flood way, and containing efficient ingress and egress and to maximize first responder access.

- Design and construct the high school to avoid or minimize impacts to sensitive environmental resources and the surrounding community. Minimize impact to the regional circulation system.

Existing BUSD high school student enrollment and projected student body population growth rates are summarized as follows:

- 2016-2017 Enrollment: 229 Students
- 2017-2018 Projected: 328 Students
- 2018-2019 Projected: 390 Students
- 2019-2020 Projected: 480 Students
- 2020-2021 Projected: 564 Students
- 2021-2022 Projected: 703 Students

2.5 Project Characteristics

The project would construct a new high school for grades 9-12 with a maximum enrollment of 1,500 students and a maximum of 60 staff (teachers, aides, administrators, and other school personnel). The project would provide approximately 150,500 square feet (sf) building floor area and approximately 21.4 acres of recreational fields, parking, and landscape/hardscape (**Figures 2-1** and **2-2)** on the 48.9-acre project site. **Table 2-1** provides a breakdown of the project components. The proposed buildings include permanent classrooms, administrative offices, media centers, and gymnasium. The project would also include recreational fields and facilities for community use after school hours, weekends, and holidays. Horticultural plantings could be incorporated into the landscaped areas.

All proposed project structures would be developed to a maximum height of 34 feet. Proposed project building elevations would vary up to 34 feet in height, and the final building elevations would be subject to approval of BUSD Board of Trustees as part of the entitlement process.

A passenger pick-up and drop-off area with seat walls (short walls that can function as seating) would be located along the east side of the campus, along the access driveway (**Figure 2-3**). The project would include a lunch shelter with an adjacent event space (assembly plaza), mounded lawn with tiered seat walls at the event plaza. The site would include an outdoor collaboration courtyard, fitness pavilion, and arts courtyard.

Path: U:\GIS\GIS\Projects\16xxxx\D160855 Bonsall USD\03 MXDs Projects\EIR\Fig2-3 SitePlan.mxd jln 11/3/2017

SOURCE: ESA

Bonsall High School / BUSD

Figure 2-1
Site Plan

ESA

\\sfo-file01\PROJECTS\LAX\16xxxx\D160855.00 - Bonsall USD\05 Graphics-GIS-Modeling\EIR\Illustrator\Fig 5 Site Plan.ai

SOURCE: Baker Nowicki

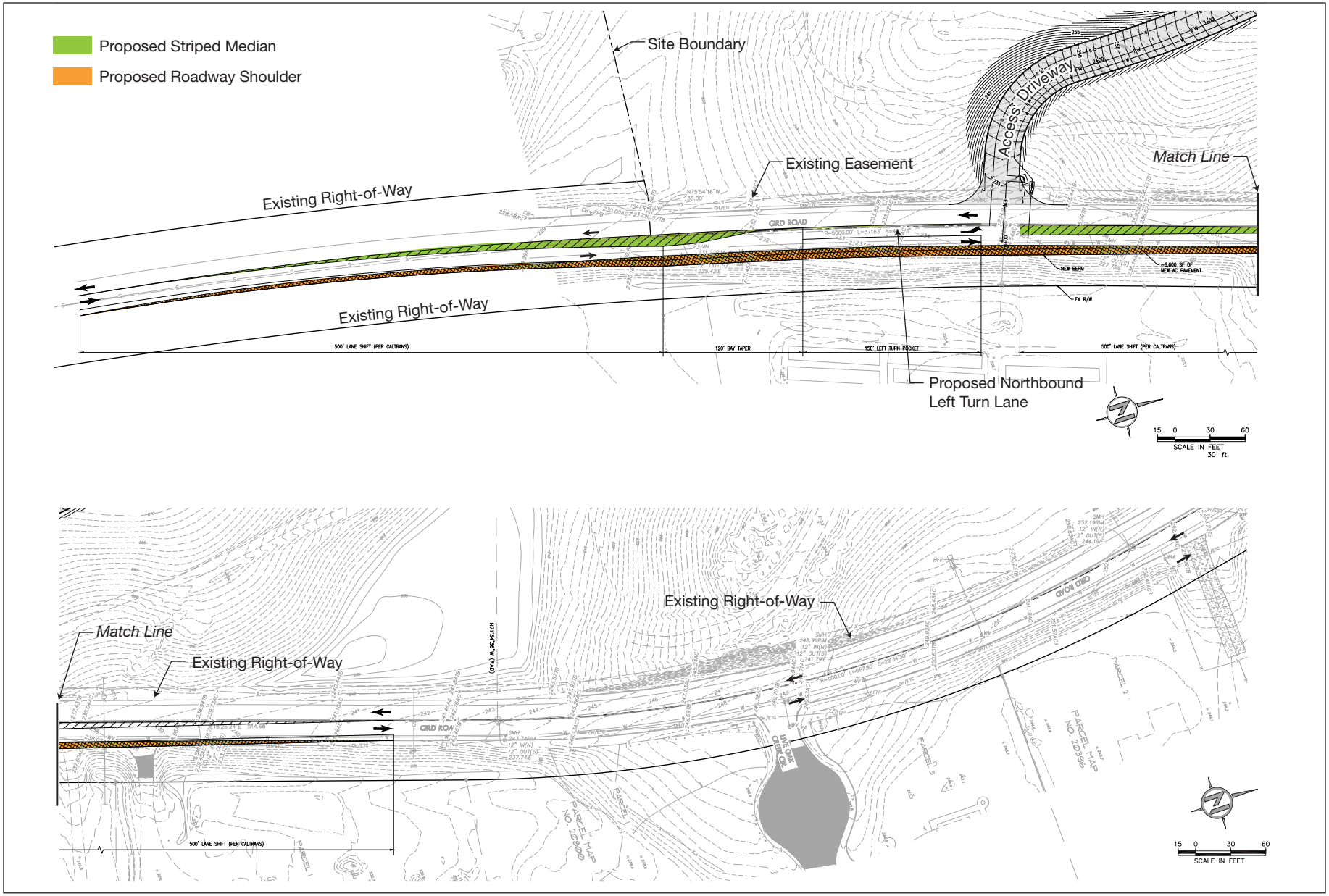
Bonsall High School / BUSD

Figure 2-2

Illustrative Site Plan

ESA

This page intentionally left blank



D160855

SOURCE: Baker Nowicki Design Studio

Bonsall High School / BUSD

Figure 2-3
Proposed Gird Road Geometrics

ESA

TABLE 2-1
PROJECT COMPONENTS

Building/Facility	Number of Floors	Ground Area (SF/Acres)	Total Building Area (SF)
Administration/Student Support	1	5,500 sf	5,500 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building & Learning Commons	2	16,200 sf	32,400 sf
Classroom Building – Art, Music, Drama, Food Service	1	17,800 sf	17,800 sf
Gymnasium/Lockers/Support	1	30,000 sf	30,000 sf
Total – Buildings		**3.2 acres/101,900 sf**	**150,500 sf**
Recreational Fields/Track/Field Building	-	3.4 acres	-
Landscape/Hardscape/Sports Courts	-	12.2 acres	-
Parking Lot/Bus Parking/Driveway	-	5.8 acres	-
Total Improvements - Non-Buildings	**-**	**21.4 acres**	**-**
Golf Course Encroachment		1.9 acres	
Total – Disturbed Area	**-**	**24.6 acres***	**-**
Total – Undisturbed Open Space Area	**-**	**22.4 acres***	
Total – Project Site	**-**	**48.9 acres****	
Offsite Improvements – Gird Road	**-**	**0.1 acres**	**-**

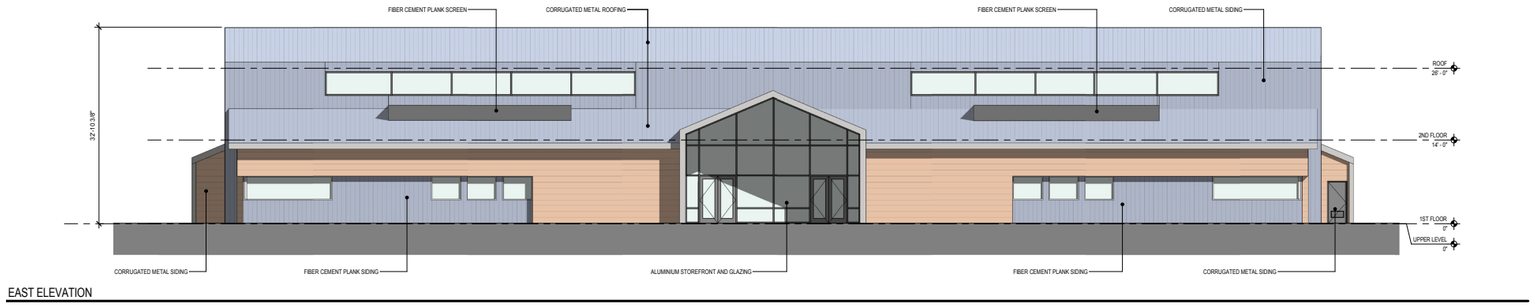
* Does not include existing golf course encroachment area.
** Does not include Gird Road easement area.
SOURCE: BakerNowicki design studio, 2017

The project would include athletic fields including a running track, soccer field, natural turf playing fields, and a fitness pavilion with asphalt basketball courts.

The buildings would be of modern design and include contemporary features such as corrugated metal siding, fiber cement plank siding, fiber cement panels, aluminum storefront and glazing, corrugated metal roofing, and fiber cement plank screens. Exterior colors would be varied neutral colors of tans, browns, and light blue. The design concepts for the Classroom Buildings and Physical Education Building are shown in in **Figure 2-4**.

2.5.1 Events

The project site would be used on occasional weekends and weekday during non-school hours for sporting events, including: soccer, basketball, volleyball, and track and field. Stadium seating is not proposed for the athletic fields and athletic field light lighting is not proposed. The project site would also be used for occasional large public events such as graduation ceremonies. These large events would not occur more than a few times per school year.

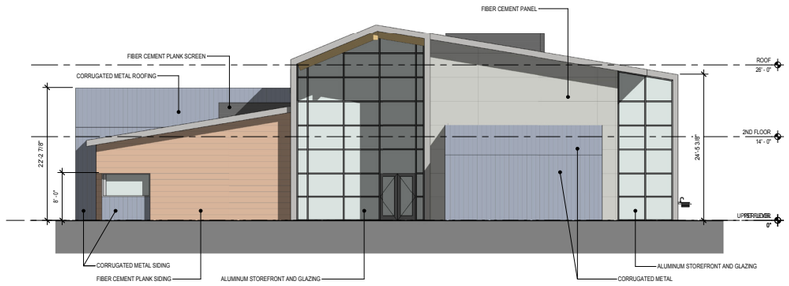


EAST ELEVATION

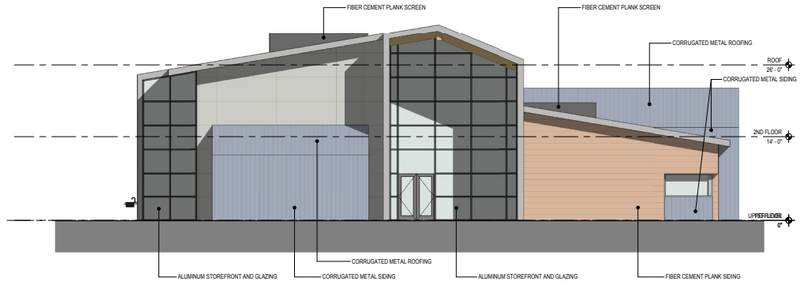
PAINTED PLASTER COLOR A

PAINTED PLASTER COLOR B

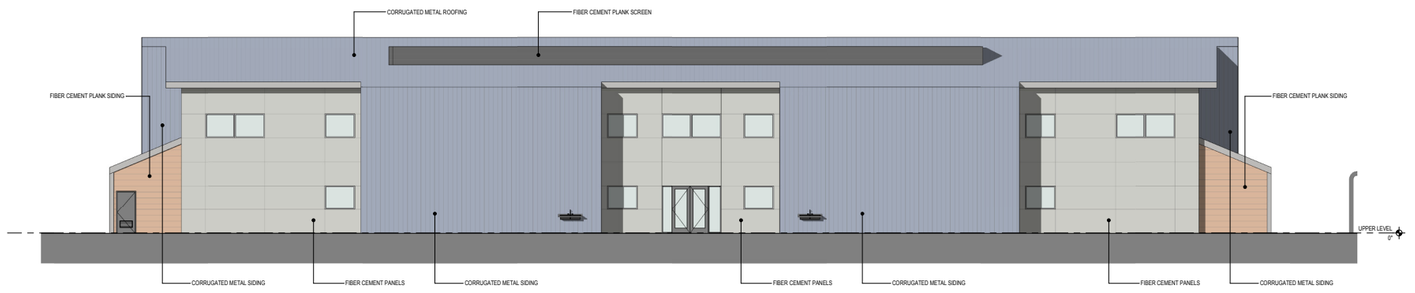
FIBER CEMENT PANEL



NORTH ELEVATION



SOUTH ELEVATION



WEST ELEVATION

\\sfo-file01\PROJECTS\LAX\16xxxx\D160855.00 - Bonsall USD\05 Graphics-GIS-Modeling\EIR\Illustrator\Fig 5 Elevations.ai

SOURCE: Baker Nowicki

Bonsall High School / BUSD

Figure 2-4

Building Elevations

ESA

This page intentionally left blank

2.5.2 Access/Circulation/Parking

Regional access to the site would be provided by I-15 via SR-76. Project site access would be provided via a new driveway on Gird Road with an onsite turn-around loop for pick-up/drop-off (Figure 2-2). The northbound left turn pocket in Gird Road would be 150 feet long as part of the project. The access driveway would be stop-sign controlled (i.e. drivers exiting the school onto Gird Road would encounter the stop sign). Acceleration and deceleration transition areas are proposed north and south of the access driveway on the west side of Gird Road. Sidewalks are not proposed along Gird Road. No other improvements to Gird Road are planned as part of the proposed project. The Access Driveway/Gird Road intersection geometrics are shown in Figure 2-3. Minor improvements to Gird Road will be required to add a north bound left turn lane pocket and southbound acceleration/deceleration driveway transition areas. These improvements will require minor roadway shoulder grading and 6,600 square feet of new pavement located with the County right-of-way. An encroachment permit is required from the San Diego County Department of Public Works to complete work within the right-of-way.

The North County Fire Protection District (NCFPD) agrees that a single point of access to the project site is acceptable (July 7, 2017 meeting with NCFPD), as there is adequate access/stacking distance along the proposed divided driveway and adequate ingress /egress for fire and emergency apparatus and related equipment. A driveway extending from the parking lot to the food service building would provide for structural fire/emergency access in addition to food delivery service access. There are bicycle lanes on Gird Road; however, no other bike or pedestrian access would be provided to the project site.

The project includes 60 stalls for staff/visitor parking and 139 stalls for student parking. A parking area for up to 12 school buses would be included on the project site contiguous to staff and student parking areas. Some students within the District would be bused to the high school, including students from the Pala Reservation and eastern Oceanside.

2.5.3 Landscaping / Fuel Modification

The campus would include planted drought tolerant trees, shrubs and lawns. A “watercourse” feature with California sycamore trees would serve as a visual campus connector with a faux bridge over the watercourse. The “watercourse” feature would also serve as a stormwater treatment area. The project includes a quad area with mounded planters, seating niches with seat walls, natural boulders, native oak and sycamore trees, and grassy meadow understory planting. Horticultural plantings could be incorporated into the landscape design. The project includes artificial and natural turf playing fields. Existing stands of native coast like oak trees would remain on the project site. The environmentally sensitive areas would be avoided as part of project design.

A 100-foot wide fuel modification zone has been incorporated into the site and landscape plans to protect the proposed school facilities from wildfire per the requirements of the North County Fire Protection District (NCFPD). The 100-foot zone extends from the edge of the proposed structures outward towards the project perimeter. All fuel modification zone areas are

incorporated into locations proposed to be graded, including sports field/turf areas, hardscape/parking areas and other areas proposed to be landscaped. Adjacent areas surrounding the project site are considered low fuel areas, including the existing golf course to the west and south, single family residential to the north and Gird Road/disturbed area to the east. The fuel modification zone will be cleared of all high fuel vegetation and planted with drought tolerance low fuel plant material. Any existing/preserved oak trees with the fuel modification zone will be pruned to remove dead wood and the entire fuel modification zone will be maintained on a regular basis.

2.5.4 Lighting/Signage

Exterior building, pathway and parking lot lighting would consist of light-emitting diodes (LED) fixtures. A combination of fixtures in building canopies, wall-mounted fixtures, and pole-mounted luminaries would be used. No athletic field night-lighting is proposed.

A campus monument identification sign would be placed along the project site frontage near the driveway at Gird Road.

General illumination levels would be as follows

- Office and Classroom Areas: 50 foot candles (FC)[1]
- Corridors: 20 FC
- Storage Areas: 20 fc
- Surface parking Areas: 1 FC

2.5.5 Heating, Ventilation and Air Conditioning Systems

The classrooms would be served by roof mounted packaged air conditioning units with gas heat each mounted on a roof curb. The roof top units (RTU's) would be mounted over non-sound sensitive areas in a downshot configuration such that ductwork would not be required on the roof. The first 10 feet of supply and return duct connecting to air handling units (AHUs) would be lined (with perforated metal) for duct sound attenuation. The RTUs would have an economizer section and CO2 monitoring to provide for demand control ventilation. Split system heat pumps would be used for select areas.

Larger assembly areas, such as conference rooms and classrooms, are infrequently filled to capacity with occupants. However, the air-handling unit serving these spaces would be designed to serve the maximum occupant level for proper ventilation requirements and for thermal comfort. Carbon dioxide sensing systems would be used in these spaces, such that the AHU outside damper would be modulated to avoid increased levels of carbon dioxide in these spaces. This shall increase energy efficiency and superior indoor air quality (IAQ). The carbon dioxide sensors would be located near the thermostat in the areas served and in the outside air intake for comparative measuring. The carbon dioxide sensors in the zones would integrate with the

[1] A unit of illumination equal to that given by a source of on candela at a distance of one foot (equivalent to one lumen per square foot)

automatic economizer control such that the sufficient minimum outside air is brought in to keep room carbon dioxide levels below a 600 ppm differential as compared to ambient.

The electrical room would be ventilated via an exhaust fan to ensure temperature does not exceed levels dangerous to the electrical and electronic equipment located in the space. Equipment room exhaust fans would be controlled from a wall mount thermostat. Make up air supply would be from nearest supply air system or transfer air from adjacent spaces.

The entire facility in the HVAC system would be modeled using the latest approved version of Energy Pro. Energy calculation software would establish compliance with the latest California Title 24 Energy Compliance standards.

Energy Management Systems/Direct Digital Controls

The building would be connected to the campus-wide energy management system (EMS). A networking control module would be provided to serve as the interface between the campus-wide EMS system and the local area network (LAN) in the building. Application Specific Controllers (ASCs) would be provided and networked together on the building's LAN to monitor and control mechanical equipment, including air handling units, exhaust fans, and other equipment and sensors.

The building design would use DDC controls to monitor and control all mechanical systems. In addition to the mechanical systems, the DDC control would be capable of expanding to monitor and control domestic hot water, outdoor lighting, and building kilowatts per hour (kWh).

Design features including landscape irrigation control and photocell activation of exterior lighting may be incorporated into the DDC system to automate systems to match the use of resources (energy and water) to the actual needs that conditions warrant.

2.5.6 Storm Drainage

Onsite stormwater would be collected by catch basins located throughout the site and conveyed via a new storm drain line and vegetated cobble swale to one of four new bio-filtration basins. Rip-rap energy dissipators would be placed in and outside of the basins to reduce water velocity to protect downstream areas from erosion. Stormwater would be retained onsite or released to downstream drainage areas the San Luis Rey River south of the project site, during larger storm events.

2.5.7 Utilities

Water and wastewater service would be provided by Rainbow Municipal Water District (RMWD). The proposed project is expected to connect to the existing water and wastewater mains within Gird Road. RMWD has indicated that the existing water main line laterals in Gird Road and the existing water meter will need to be replaced due to age. The new water and sewer lines on the project site would connect to existing mains where the proposed driveway intersects with Gird Road.

The domestic water service would be separate from the fire water service for supply to the buildings. The domestic water service would be brought to within five feet from the building and then provide a pressure reducing station assembly and isolation valve at each building. The pressure reducing station would limit water pressure inside the buildings to a maximum of 80 psi.

A sanitary waste and vent system would be provided for potable waste producing fixtures and equipment with all fixtures trapped and vented to the atmosphere. The building system would flow by gravity to the exterior at a slope of ¼-inch per foot or 1/8-inch per foot if restricted by structural or site constraints. The sanitary waste would extend to five feet outside the building.

Natural gas would be delivered to the site from the existing gas system and brought to each building requiring gas services.

2.5.8 Project Construction / Phasing

Construction of the project would be completed in two phases. Phase 1 and Phase 2 grading and site preparation and undergrounding of utilities is expected to commence in late 2019 and would last approximately three months. Phase 1 building construction and development of the driveway, parking lot, landscaping, and lighting would last approximately 13 months. Phase 2 building construction and landscaping is dependent upon available funding and is expected to begin in spring 2023. Phase 1 would be operational by summer 2021 and Phase 2 would be operational by summer 2025.

Project grading would be balanced onsite and would not require import or export material to create finished pads for building construction. The design and construction of the proposed project has been developed to adhere to the State of California, Division of State Architect architectural design requirements and the San Diego County Code of Ordinances (Gird Road improvements) requirements.

Project construction personnel and equipment onsite would vary depending on the construction task, and would include a range of construction trades and equipment, including grading, drainage, underground utilities, paving, building construction, lighting, landscaping and fencing. An average of 50 construction personnel would be expected to be onsite at any given time during the construction phase.

2.6 Project Approvals and Intended Uses of the EIR

The proposed project would require approval of the following discretionary and other implementing approvals:

- Project approval – BUSD Board of Trustees
- Environmental Impact Report certification - BUSD Board of Trustees
- Site Plan and Architecture Design Review Approval – BUSD Board of Trustees

Other permits and approvals that may be required include the following:

- Regional Water Quality Control Board, General Construction Permit
- Permitting may be required by/through the San Diego County Air Pollution Control District (SDCAPCD) for certain aspects of project operation and associated equipment.
- San Diego County Department of Public Works approval for Gird Road improvements.
- Permitting (i.e., utility connection permits) may be required from utility providers.
- Other ministerial permits necessary to realize on- and off-site improvements related to the development of the site.

Approvals that have been obtained:

- Phase 1 ESA Approval – State of California, Department of Toxic Substances Control (August 1, 2016)

CHAPTER 3
Environmental Analysis

This Draft EIR is prepared in accordance with CEQA (California Public Resources Code, Section 21000 et seq.), and the *CEQA Guidelines* (California Code of Regulations, Title 14, Section 15000 et seq.). This Draft EIR evaluates the potential environmental impacts associated with the construction and operation of the proposed project. This Draft EIR is intended to serve as an informational document for the public agency decision-makers and the public regarding the proposed project.

3.1 Scope of the Environmental Impact Analysis

In accordance with Section 15126 of the *CEQA Guidelines*, Chapter 3 provides an analysis of the direct and indirect, project and cumulative, environmental effects of the proposed project with respect to existing conditions at the time the NOP was published in May, 2017 (Appendix A). The determination of whether an impact is significant is based on the significance thresholds and methodology that have been identified for each environmental issue.

The following environmental resources are assessed in this chapter in accordance with Appendix G of the *CEQA Guidelines:*

- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology, Soils and Seismicity
- Greenhouse Gas Emissions
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Public Services
- Transportation and Traffic
- Tribal Cultural Resources
- Utilities

3.1.1 Approach to Environmental Analysis

Sections 3.1 through 3.15 of this Draft EIR contain discussions of the environmental setting, regulatory framework, and potential impacts related to construction and operation of the proposed project. The environmental evaluation includes a project analysis and a cumulative analysis. The project analysis includes a level of impact before the implementation of mitigation measures, if required. The analyses also include a level of impact after the implementation of mitigation measures.

3.1.2 Organization of Environmental Issue Area

The analysis of each environmental issue includes the following components:

Introduction

Provides an introduction to the environmental issue analysis and notes other related issues, if applicable.

Environmental Setting

This section identifies and describes the existing physical environmental conditions of project site associated with each of the impact sections. According to Section 15125(a) of the *CEQA Guidelines*, an EIR must include a description of the existing physical environmental conditions in the vicinity of the proposed project to provide the "baseline condition" against which project-related impacts are compared. Normally, the baseline condition is the physical condition that exists when the NOP is published. The NOP for the proposed project was published in May 2017, which is considered the baseline for the analysis contained in this Draft EIR.

Regulatory Framework

The Regulatory Framework provides an understanding of the regulatory environment that exists prior to the implementation of the proposed project. The regulatory framework used in this Draft EIR includes applicable federal, state, regional, and local regulations and policies.

Impacts and Mitigation Measures

This section describes the significance thresholds and methodology used for the analysis. The environmental changes to the existing physical conditions that may occur if the proposed project is implemented are discussed, and an evaluation of these changes with respect to the significance criteria is provided. This section also includes a project impact analysis and a cumulative impact analysis. The level of impact prior to the implementation of mitigation is identified. Mitigation measures are identified for potential significant project and cumulative impacts, if determined feasible. The mitigation measures are those measures that could avoid, minimize, or reduce an environmental impact. This section also includes a discussion of the level of significance after mitigation that describes the level of impact significance remaining after mitigation measures are implemented.

References

Sources relied upon for each environmental topic analyzed in this document are provided at the end of each section.

3.1.3 Thresholds of Significance/Significance Criteria

State CEQA Guidelines Section 15382 defines a significant effect on the environment as:

> *a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.*

The "Significance Criteria" subsections provide thresholds of significance by which impacts are judged to be significant in this Draft EIR. These include identifiable quantitative or qualitative standards or sets of criteria pursuant to which the significance of a given environmental effect may be determined. Exceedance of a threshold of significance normally means the effect will be determined to be significant (*State CEQA Guidelines* Section 15064.7(a)). However, an ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting (*State CEQA Guidelines* Section 15064(b)). Therefore, a Lead Agency has the discretion to determine whether to classify an impact described in an EIR as "significant," depending on the nature of the area affected. The thresholds of significance used to assess the significant of impacts are based on those provided in Appendix G of the *State CEQA Guidelines*.

3.1.4 Terminology Used in This Environmental Analysis

When evaluating the impacts of the proposed project and project alternatives, the level of significance is determined by applying the threshold of significance (significance criteria) presented for each resource evaluation area. The following terms are used to describe each type of impact:

No Impact: No adverse impact on the environment would occur, and mitigation is not required.

Less Than Significant Impact: The impact does not reach or exceed the defined threshold of significance.

Less than Significant Impact with Mitigation: The impact reaches or exceeds the defined threshold of significance and mitigation is therefore required. Feasible mitigation measures, when implemented, will reduce the significant impact to a less than significant level.

Significant Unavoidable Impact: The impact reaches or exceeds the defined threshold of significance. However, application of feasible mitigation measures would not reduce the impact to a less than significant level.

Mitigation: Mitigation refers to feasible measures that would be implemented to avoid or lessen potentially significant impacts. Mitigation includes:

- Avoiding the impact completely by not taking a certain action or parts of an action;
- Minimizing the impact by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or
- Compensating for the impact by replacing or providing substitute resources or environments.

The mitigation measures would be proposed as a condition of project approval and would be monitored to ensure compliance and implementation.

Residual Impacts: This is the level of impact after the implementation of mitigation measures.

3.1.5 Cumulative Projects

Cumulative impacts refer to the combined effect of project impacts with the impacts of other past, present, and reasonably foreseeable probable future projects. Both CEQA and the State CEQA Guidelines require that cumulative impacts be analyzed in an EIR. As set forth in the State CEQA Guidelines Section 15130(b), "*the discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone*."

According to Section 15355 of the State CEQA Guidelines:

> "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Therefore, the cumulative discussion in this Draft EIR focuses on whether the impacts of the proposed project are cumulatively considerable within the context of impacts caused by other past, present, and reasonably foreseeable future projects.

State CEQA Guidelines Section 15130(b)(1) states that the information utilized in an analysis of cumulative impacts should come from one of the following:

- A list of past, present, and probable future projects producing related or cumulative impacts, including those projects outside the control of the lead agency.
- A summary of projections contained in an adopted local, regional or statewide plan or related planning document that describes or evaluates conditions contributing to the cumulative effect.

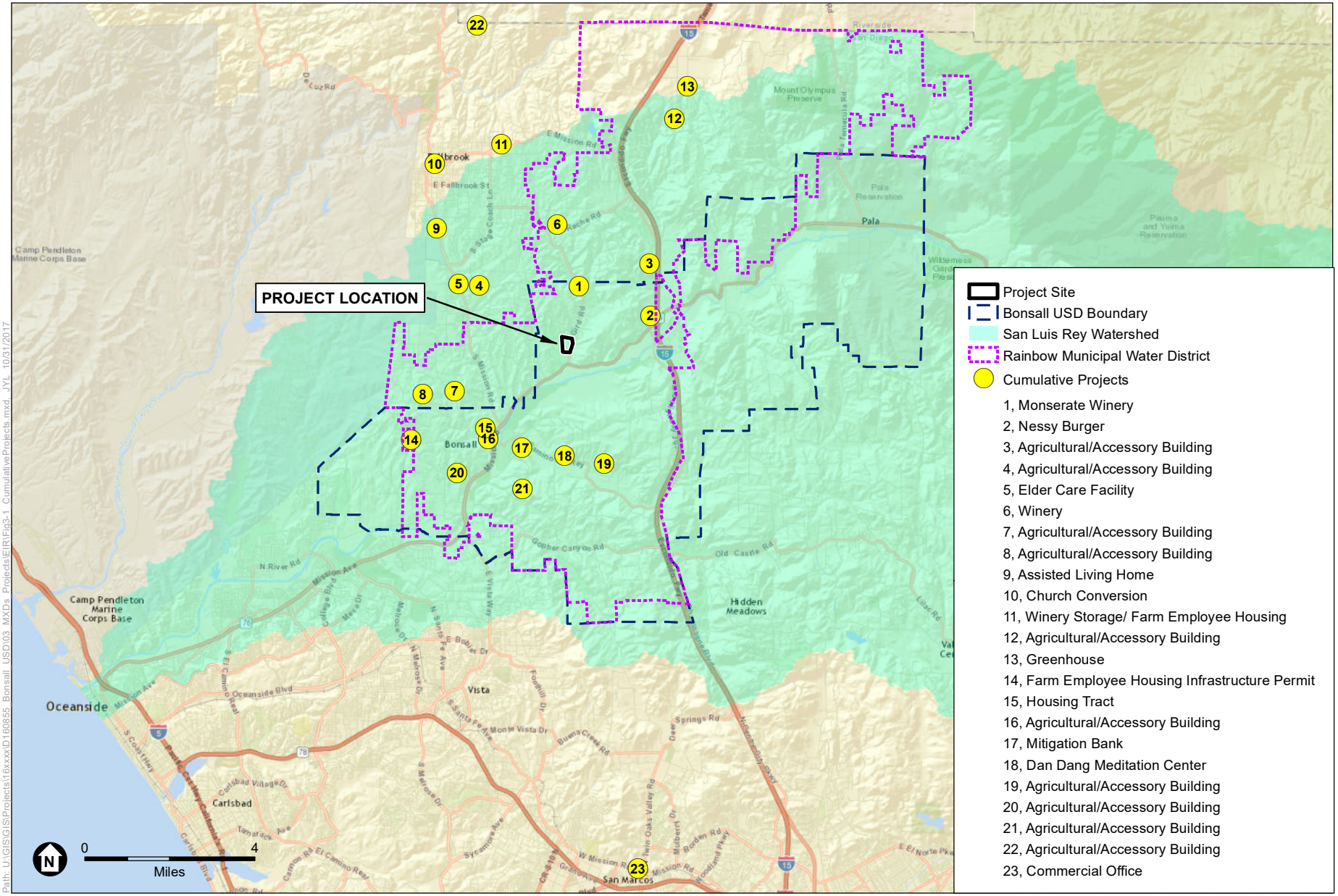
Cumulative impact discussions for each issue area are provided in the technical analysis contained within Chapter 3 and use the methods described above. **Table 3-1** provides a list of the projects that are considered in this cumulative environmental analysis, and **Figure 3-1** provides the location of these projects.

TABLE 3-1
CUMULATIVE PROJECT LIST

No.	Project Name/Location	Description	Size	Units[1]	Status
1	Monserate Winery 2757 Gird Road	Replace the old Fallbrook Golf Club with a winery including vineyards and wine house	188	Acres	
17	Mitigation Bank 31474 Golf Club Drive	Replace the old San Luis Rey Downs Golf Club with a mitigation bank			
13	Greenhouse 2465 Rainbow Valley Road	Greenhouse	53.460	KSF	Entitled
10	Church Conversion 135 E. Ivy Street	Conversion to church from bank	6.282	KSF	Entitled
2	Nessy Burger 3235 S. Old Highway 395	Restaurant/Commercial	934	SF	Plan Check about to expire
9	Assisted Living Home 1735 S. Mission Road	Medical	91.250	KSF	Plan Check about to expire
18	Dan Dang Meditation Center 6326 Camino Del Rey	Church	44.611	KSF	Plan Check about to expire
8	Agricultural/Accessory Building 4878 San Jacinto Circle East	Accessory Building	4.605	KSF	Entitled
23	Commercial Office 205 W. Mission Road	Commercial	640	SF	Entitled
19	Agricultural/Accessory Building 7064 Via Mariposa Norte	Accessory Building	1.296	KSF	Open
3	Agricultural/Accessory Building 2175 Tecalote Drive	Accessory Building	2.600	KSF	Entitled
4	Agricultural/Accessory Building 1310 Montecito Lane	Accessory Building (Greenhouse)	375	SF	Entitled
20	Agricultural/Accessory Building 4438 Via de los Cepillos	Accessory Building	131	SF	Open
6	Winery 1600 Via Vista	Commercial	2.146	KSF	Open
21	Agricultural/Accessory Building 30818 Chateau Haut Briant	Accessory Building	1.880	KSF	Entitled
7	Agricultural/Accessory Building 4848 Olive Hill Road	Accessory Building	733	SF	Entitled

No.	Project Name/Location	Description	Size	Units[1]	Status
14	Farm Employee Housing Infrastructure Permit 1917 Valle Del Sol	Residential			Entitled
5	Elder Care Facility 2805 Overland Trail	Medical	20.857	KSF	Open
15	Housing Tract 5817 Via Del Caballero	Residential	5.901	KSF	Entitled
15	Housing Tract 5707 Via Del Caballero	Residential	4.367	KSF	Entitled
15	Housing Tract 5675 Via Del Caballero	Residential	4.481	KSF	Entitled
15	Housing Tract 5811 Via Del Caballero	Residential	4.669	KSF	Entitled
15	Housing Tract 5805 Via Del Caballero	Residential	2.866	KSF	Entitled
15	Housing Tract 5676 Rancho Del Caballo	Residential	5.613	KSF	Entitled
15	Housing Tract 5690 Rancho Del Caballo	Residential	4.631	KSF	Entitled
12	Agricultural/Accessory Building 903 Canyon Heights Road	Accessory Building	2.100	KSF	Entitled
16	Fire Station 5906 Olive Hill Road	Fire Station	5.225	KSF	Open
15	Housing Tract 5662 Rancho Del Caballo	Residential	4.667	KSF	Entitled
15	Housing Tract 5648 Rancho Del Caballo	Residential	5.309	KSF	Entitled
15	Housing Tract 5634 Rancho Del Caballo	Residential	4.669	KSF	Entitled
15	Housing Tract 5620 Rancho Del Caballo	Residential	5.309	KSF	Entitled
15	Housing Tract 5606 Rancho Del Caballo	Residential	3.889	KSF	Entitled
15	Housing Tract 5635 Rancho Del Caballo	Residential	3.669	KSF	Entitled
15	Housing Tract 5657 Rancho Del Caballo	Residential	4.367	KSF	Entitled
15	Housing Tract 5895 Rancho Del Caballo	Residential	5.309	KSF	Entitled
15	Housing Tract 5878 Rancho Del Caballo	Residential	3.667	KSF	Entitled
15	Housing Tract 5856 Rancho Del Caballo	Residential	3.900	KSF	Entitled
11	Winery Storage/ Farm Employee Housing 1924 E. Mission Road	Commercial/ Residential	4.643	KSF	Open
22	Agricultural/Accessory Building 40789 Via de la Roca	Accessory Building	2.400	KSF	Entitled

KSF = Thousand Square Feet and SF = Square Feet



SOURCE: ESRI; SanGIS

Bonsall High School / BUSD

Figure 3-1

Cumulative Projects

ESA

3.1 Aesthetics

This section evaluates potential impacts to aesthetics that could occur with implementation of the proposed project. This section describes the visual context of the project site and vicinity and the overall visual character of the area.

Aesthetics may be defined as visual qualities within a given field of view, and may include such considerations as size, shape, color, contextual and general composition and the relationships between these elements. This analysis relies on information contained in the county of San Diego General Plan, site photographs, and various illustrations of the proposed project provided by the project architect, including the project site plan, and proposed building elevations. Key terms that are used to describe these views include:

- **Visual character** is the aggregate of the visible attributes of a scene or object, including natural (topography, water bodies, vegetation) and built (building height and form, types of infrastructure) features. In urban settings, the visual character is influenced primarily by the land use type and density, urban landscaping and design, topography, and background setting.
- **Visual quality** refers to how well the overall visual character of an area or a field of view meets viewer preferences for the natural and built environments. Views with high visual quality typically consist of unique or prominent natural or man-made attributes or several small features that, when viewed together, create a whole that is visually interesting or appealing. The focus of the visual quality analysis is on the loss of features with high visual quality or the introduction of contrasting features that could substantially degrade the visual character of the project area.

This section also addresses the potential lighting and glare impacts of the proposed project. The potential adverse environmental effects that could result from light and glare associated with the proposed project typically occur only under certain defined conditions.

- **Light Trespass** is the spilling of artificial light from the project onto an adjacent property, can occur at any time, but adverse effects typically result only at night, when the relative contribution of the light trespass to the illumination[1] on adjacent properties can be substantive.
- **Glare** is a visual effect that results when there is a large contrast in luminance between a relatively bright light source and a relatively dark background within the viewer's field of vision. If the visual contrast in the brightness of the light and the background is sufficiently high, glare results.

[1] The natural illumination on open ground varies in intensity by many orders of magnitude, from roughly 10,000 footcandles (ftcd) for direct sunlight, to 100 ftcd on an overcast day, 1 ftcd at twilight, and 0.01 ftcd under a full moon. Outdoor artificial lighting is usually designed to illuminate sidewalks to less than 1 ftcd, parking lots to 2 ftcd, and street intersections to between 2 and 4 ftcd (primarily to lower the risk to pedestrians in those intersections). Thus, illumination from artificial lighting exceeds natural illumination only during the time after sunset and before sunrise.

3.1.1 Environmental Setting

Regional Setting

Visual resources consist of natural landscapes and scenic views, including landforms, vegetation, and water features, as well as unique elements of the built environment. The proposed project is located in San Diego County (county), which encompasses approximately 4,261 square miles of land. The county is bordered by Riverside County and Orange County to the north; Imperial County to the east; the nation of Mexico to the south; and the Pacific Ocean to the west (County of San Diego, 2011a). In general, San Diego County is characterized by a variety of landforms including coastal shorelines, hills, mountains, and desert. San Diego County contains an abundance of natural open space, scenic highways, scenic vistas, and other aesthetic resources. These natural features contribute to the overall quality of the existing visual setting.

San Diego County has three distinctive geographic regions that provide a backdrop for visual resources: the low-lying coastal plain, the mountainous Peninsular Range, and the lowlands of the desert. Throughout the three distinctive geographic provinces are private and publically owned large expanses of open space, County parks, habitat preserves, reservoirs, farmland and undeveloped lands. The proposed project is located within the mountainous peninsular range (County of San Diego, 2011b).

Primary scenic resources in the Peninsular Range foothills include the Otay River, Sweetwater River, upper San Diego River, Upper and Lower Otay Lakes, Sweetwater Reservoir, Lake Hodges, and San Vicente Reservoir. Scenic resources in the higher elevation of the Peninsular Range region include large open spaces such as Cleveland National Forest, Agua Tibia Wilderness Area, San Mateo Canyon Wilderness, Palomar Mountain State Park, Cuyamaca Rancho State Park, and various County reserves and parks, as well as the large water bodies of El Capitan Reservoir, Barrett Lake, Lake Morena, Lake Cuyamaca, and Lake Henshaw (County of San Diego, 2011b).

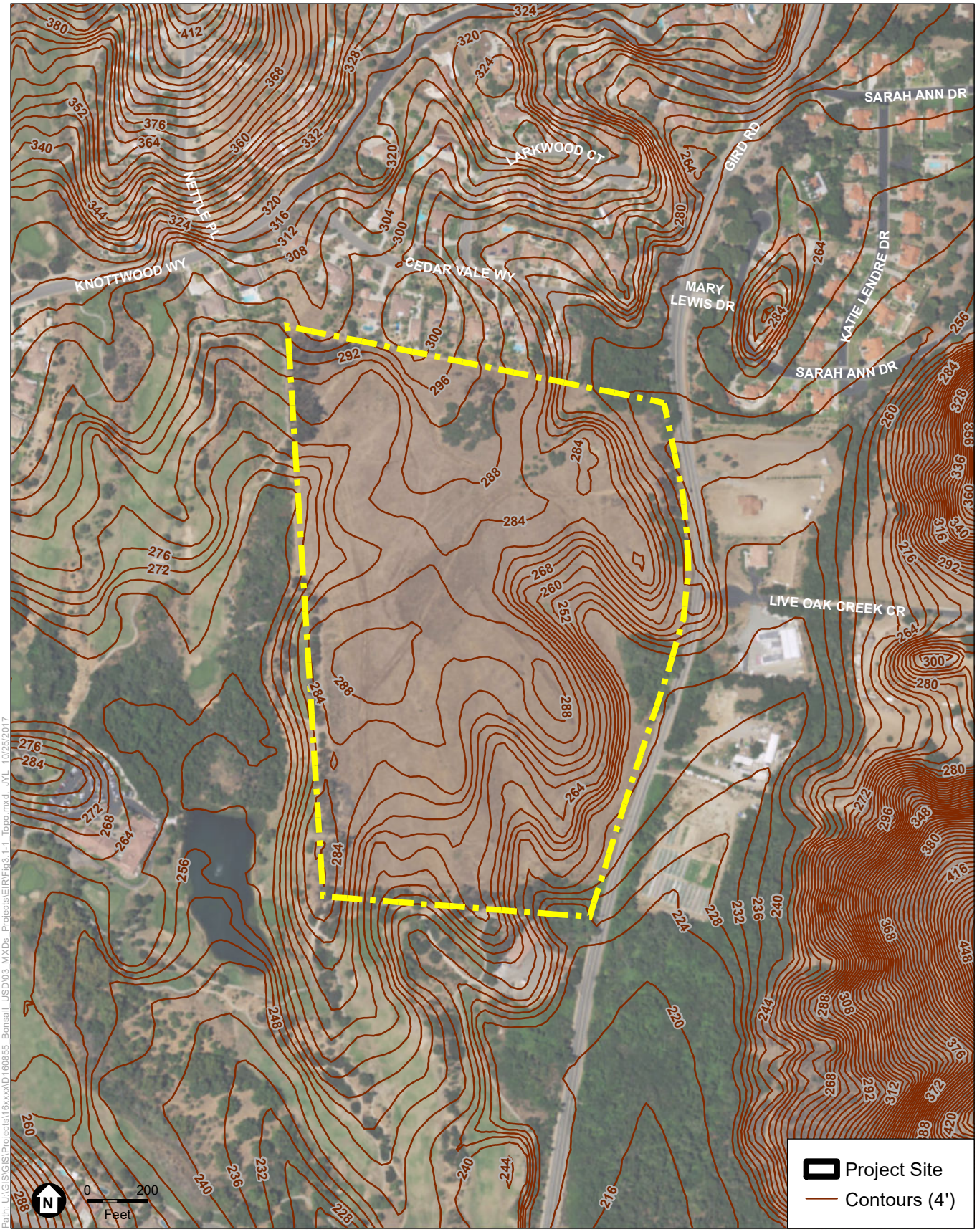
A majority of the unincorporated area of San Diego County is made up of community planning areas (CPAs) that have their own community plans which designate specific visual resources that are significant. The project site is located within the Fallbrook Community Plan Area. Further, each CPA has designated resource conservation areas (RCAs) for the purposes of informing future planning decisions. RCAs include, but are not limited to, areas of aesthetic quality, groundwater problem areas, coastal wetlands, native wildlife habitats, construction quality sand areas, littoral sand areas, astronomical dark skies areas, scenic geologic formations, and significant archaeological and historical sites (County of San Diego, 2011b). The Fallbrook Community Area contains 11 different RCAs. The project site is not within one of these RCAs (County of San Diego, 2011c).

Project Site Setting

The Fallbrook Community Area is made up of approximately 36,084 acres and is characterized by predominately low density residential development and agricultural uses. The community has a well-developed network of roads, and town center with commercial and industrial areas. Outside of the town center, Fallbrook has a rural and agricultural character with areas of rugged

terrain rivers. The CPA has maintained a dark night sky, which is important to the nearby Palomar Observatory. The CPA contains RCAs made up open spaces, hills, natural waterways, and scenic routes. The most notable visual resource within the project area is Lancaster Mountain, which includes areas of oak woodland, mixed chaparral habitat, and steep rocky slopes (County of San Diego, 2011b).

The project site is located in the southeastern portion of the Fallbrook Community Area just west of Gird Road approximately 0.4-mile north of State Route (SR) 76, and 2 miles west of Interstate 15 (I-15). The project site is located upon undeveloped land with elevations ranging from 265 to 288 feet above mean sea level (amsl). The project site generally slopes to the southeast and consists of a vacant area with gently sloping grasses and shrubs (**Figure 3.1-1**). Intermittent trees and areas of denser vegetation line the boundary of the project area. The project site is surrounded by residential uses to the north across Gird Road, residential and agricultural uses to the east across Grid Road, and open space used for recreational uses to the west and south. One residential lot is located south of the project site. The project site is located approximately 2.7 miles west of the Community designated scenic Lancaster Mountain. The Golf Club of America, Wedgewood Wedding and Banquet Center, and surrounding open area to the south and west of the project site are not designated as a scenic vista or significant visual resource (County of San Diego, 2011b).



SOURCE: ESRI; SanGIS

Bonsall High School / BUSD

Figure 3.1-1
Existing Topography

ESA

Key Public Viewpoints

Key public viewpoints that would be altered by development of the project include: looking south from Cedar Vale Way, views looking west from Gird Road, views looking northwest from SR-76, and views looking east from Flowerwood Lane. The views are discussed below and shown in **Figure 3.1-2**. Typical project building elevations are depicted in Figure 2-4.

Viewpoint #1: View looking south from Cedar Vale Way and Residences: A view of the project site and surrounding area is provided to motorists and pedestrians traveling eastbound and west bound along Cedar Vale Way. Views are obstructed by residential lots and landscaping along Cedar Vale Way. Primary views of the project site would be from nine residential lots located just north of the project site. Existing views from this viewpoint are characterized by natural rolling hills and oak tree stands in the foreground. Views of the San Marcos Hills are visible in the background.

Viewpoint #2: View looking west from Gird Road: View of the project site and surrounding area from motorists and pedestrians traveling northbound and southbound along Gird Road is heavily restricted due to existing topography and vegetation. Further, residences located across Gird Road have restricted views of the project site, however, these views of the project site are partially obstructed by foreground topography and vegetation. Existing views from this viewpoint are characterized by wood utility poles, natural vegetation including oak tree stands, and a 3- to 5-foot property line fence consisting of small posts and line wires. Views of the community plan area scenic resource Lancaster Mountain are obstructed by hills located 0.10 mile east of Gird Road.

Viewpoint #3: View looking northwest from SR- 76: Views of the project site are obstructed by topography and trees, and the project site is not visible from this viewpoint. Existing views from this viewpoint are characterized by the utility poles, paved roads, street signs, natural vegetation, and trees.

Viewpoint #4: View looking east from Flowerwood Lane and Golf Course: A partially obstructed view of the project site and surrounding area is provided to motorists and pedestrians traveling northbound and southbound along Flowerwood Lane, and from the golf course fairways and cart paths. Further, multiple residences located across Flowerwood Lane have partially obstructed views of the project site. Views of the project site are partially obstructed by varying topography of the Golf Club of America and Wedgewood Wedding and Banquet Center properties. The project site is not visible from the Wedding Banquet Center but is visible to recreational users of the golf course at multiple locations. The Banquet Center users would see existing stands of trees and the grasses and rolling hills of the golf course, while views from the golf course would be characterized by natural topography and vegetation of the project site. Further, both private and public views from this viewpoint would not be able to see the community plan area scenic resource Lancaster Mountain due to local hills in the foreground just east of Gird Road.

Path: U:\GIS\GIS\Projects\16xxxx\D160855_Bonsall_USD\03_MXDs_Projects\EIR\Fig3.1-2_Viewpoints.mxd_jln_10/31/2017

SOURCE: ESRI

Bonsall High School / BUSD

Figure 3.1-2
Viewpoints

ESA

Light and Glare

The project site is located within an undeveloped area and adjacent to residential and recreational uses. The project site is vacant and does not have onsite lighting. Nighttime lighting is part of the built environment surrounding the project site, which includes vehicle headlights, street lighting at intersections and along the streets, parking lot lighting, security lighting, building lighting, as well as various other sources of light from surrounding residential uses and recreational uses. There is no general area lighting along the surrounding golf course/open area to the west and south of the project site. Sources of glare in the project area are largely attributable to reflections from vehicles or windows on surrounding homes.

3.1.2 Regulatory Setting

State

California Code of Regulations, Title 24

Title 24 of the California Code of Regulations (CCR), also known as the California Building Standards Code, consists of regulations to control building standards throughout the state. The following components of Title 24 include standards related to lighting:

- The California Building Code (Title 24, Part 1) and California Electrical Code (Title 24, Part 3) stipulate minimum light intensities for safety and security at pedestrian pathways, circulation ways, and paths of egress. All exterior lighting will comply with the requirements of the California Building Code and California Electrical Code.
- The California Energy Code (CEC) (Title 24, Part 6) stipulates allowances for lighting power and provides lighting control requirements for various lighting systems with the aim of reducing energy consumption through efficient and effective use of lighting equipment.
- The California Green Building Standards Code, which is Part 11 of Title 24, is commonly referred to as the CALGreen Code. Paragraph 5.1106.8, Light pollution reduction, requires that all non-residential outdoor lighting must comply with the following:
  - The minimum requirements in the CEC for Lighting Zones 1–4 as defined in Chapter 10 of the California Administrative Code as noted above; and
  - Backlight, uplight, and glare (BUG) ratings as defined in the Illuminating Engineering Society of North America's Technical Memorandum on Luminaire Classification Systems for Outdoor Luminaires identified as IESNA TM-15-07 Addendum A; and
  - Allowable Backlight, Uplight, and Glare ratings not exceeding those shown in Table A5.106.8 in Section 5.106.8[2] of the CALGreen Code; or
  - Comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent.

[2] Table 5.106.8, Footnote 2 defines the location of the Property Line for the purpose of evaluating compliance with the BUG ratings and provides that: "For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section."

Local

County of San Diego General Plan

While the Bonsall Unified School District (BUSD) is not required to comply with San Diego County General Plan and/or Zoning requirements, the following discussion is provided to document the project's consistency with San Diego County General Plan policies. The County of San Diego Conservation and Open Space Element provides direction to future growth and development in the County of San Diego with respect to the conservation, management, and utilization of natural and cultural resources; the protection and preservation of open space; and the provision of park and recreation resources. This element includes goals and policies specific to visual resources such as protecting scenic corridors, geographically extensive scenic viewsheds, and dark skies within the natural environment (County of San Diego, 2011a). Goals and policies relevant to the proposed project are below.

Goal COS-11: Preservation of Scenic Resources. Preservation of scenic resources, including vistas of important natural and unique features, where visual impacts of development are minimized.

COS-11.1: Protection of Scenic Resources. Require the protection of scenic highways, corridors, regionally significant scenic vistas, and natural features, including prominent ridgelines, dominant landforms, reservoirs, and scenic landscapes.

COS-11.2: Scenic Resource Connections. Promote the connection of regionally significant natural features, designated historic landmarks, and points of regional historic, visual, and cultural interest via designated scenic corridors, such as scenic highways and regional trails.

COS-11.3: Development Siting and Design. Require development within visually sensitive areas to minimize visual impacts and to preserve unique or special visual features, particularly in rural areas, through the following:

- Creative site planning
- Integration of natural features into the project
- Appropriate scale, materials, and design to complement the surrounding natural landscape
- Minimal disturbance of topography
- Clustering of development so as to preserve a balance of open space vistas, natural features, and community character.
- Creation of contiguous open space networks

COS-11.4: Collaboration with Agencies and Jurisdictions. Coordinate with adjacent federal and state agencies, local jurisdictions, and tribal governments to protect scenic resources and corridors that extend beyond the County's land use authority, but are important to the welfare of County residents.

COS-11.7: Underground Utilities. Require new development to place utilities underground and encourage "undergrounding" in existing development to maintain viewsheds, reduce hazards associated with hanging lines and utility poles, and to keep pace with current and future technologies.

Goal COS-13: Dark Skies. Preserved dark skies that contribute to rural character and are necessary for the local observatories.

COS-13.1: Restrict Light and Glare. Restrict outdoor light and glare from development projects in Semi-Rural and Rural Lands and designated rural communities to retain the quality of night skies by minimizing light pollution.

COS-13.3: Collaboration to Retain Night Skies. Coordinate with adjacent federal and state agencies, local jurisdictions, and tribal governments to retain the quality of night skies by minimizing light pollution.

County of San Diego Code of Regulatory Ordinances Sections 59.101-59.115, Light Pollution Code (LPC)

The LPC, or the Dark Sky Ordinance, was adopted "to minimize light pollution for the enjoyment and use of property and the night environment by the citizens of San Diego County and to protect the Palomar and Mount Laguna observatories from the effects of light pollution that have a detrimental effect on astronomical research by restricting the permitted use of outdoor light fixtures on private property" (Section 59.101). The LPC regulates applicants for any permit required by the County for work involving outdoor light fixtures, unless exempt (County of San Diego, 2011b).

County of San Diego Municipal Code

Chapter 2 of the County of San Diego Municipal Code contains general requirements for light pollution. The regulations and codes below are relevant to the propose project. The proposed project is within "Zone B", an area defined as all areas not within 15-mile radius of the center of the Palomar and/or Mount Laguna Observatory (County of San Diego, 2017).

Sec. 51.204. Requirements for Lamp Source and Shielding

The requirements for lamp source and shielding of light emissions for outdoor luminaires shall be as provided in the following table:

Class	Lamp Type	Zone A (15 Mi.)	Zone B
Class I Color Rendition Important	Low Pressure Sodium	Fully Shielded	Fully Shielded
	Others above 4050 Lumens	Prohibited	Fully Shielded
	Others 4050 Lumens & Below	Fully Shielded 1	Fully Shielded 1
Class II-Parking Lots, Security, Etc.	Low Pressure Sodium	Fully Shielded	Fully Shielded
	Others above 4050 Lumens	Prohibited	Prohibited, except fully shielded HPS is allowed for private roadways
	Others 4050 Lumens & Below	(a) Fully Shielded Fixture with motion sensor, or (b) Unshielded Luminaire, 2000 lumens maximum with motion sensor or (c) Residential Entrance Light, 2000 lumens maximum	(a) Fully Shielded Fixture, or (b) Unshielded Luminaire, 2000 lumens maximum with motion sensor or (c) Residential Entrance Light, 2000 lumens maximum
Class III Decorative	Low Pressure Sodium	Fully Shielded	Fully Shielded
	Others above 4050 Lumens	Prohibited	Prohibited

Class	Lamp Type	Zone A (15 Mi.)	Zone B
	Others 4050 Lumens & Below	Prohibited	Prohibited except if less than 2000 lumens per fixture
	Luminous Tube	Prohibited	Fully Shielded

(Added by Ord. No. 9974 (N.S.), effective 4-3-09)

Sec. 51.205. Submission of Plans and Evidence of Compliance

a) An applicant for any permit required by the County for work involving an outdoor luminaire, unless the work is exempt as provided in this chapter, shall submit evidence with the permit application that the proposed work will comply with this chapter. The submission shall contain the following:

   1. A map or other drawing showing the location of the property where any outdoor luminaire will be installed.
   2. Plans indicating the location on the property where each type of outdoor luminaire will be installed, indicating the type of fixture.
   3. The specifications for each outdoor luminaire to be installed including but not limited to manufacturer's catalog cuts, photometric study and drawings.

b) In order to be considered complete, the plans and descriptions shall enable the plans examiner to readily determine whether the work will comply with the requirements of this chapter. If the plans examiner cannot determine from the applicant's submission whether the proposed work complies with this chapter, the examiner may reject the application or allow the applicant to submit additional information.

(Added by Ord. No. 9974 (N.S.), effective 4-3-09)

Sec. 51.206. Hours of Operation

a) All Class I lighting shall be off between 11:00 p.m. and sunrise, except as follows:

   1. An "on premises" advertising sign may be illuminated while a facility is open to the public.
   2. A billboard may remain lighted until midnight.
   3. Outdoor illumination of a sales area, commercial area, assembly area, repair area or industrial area is allowed when the area is in use and the use is not prohibited by any permit issued by the County or by any law or regulation.
   4. Lighting at an outdoor recreational facility may remain on to allow an organized recreational event in progress to be completed, provided the event and the facility are not violating the terms of any permit issued by the County or any law or regulation.
   5. The lighting is exempt from this section as provided in section 51.207 or a temporary exemption has been granted under section 51.209.

b) Operation of a searchlight for advertising purposes is prohibited between 11:00 p.m. and sunrise.

c) Class III lighting shall be off between 11:00 p.m. and sunrise.

(Added by Ord. No. 9974 (N.S.), effective 4-3-09)

County of San Diego Zoning Ordinance

The San Diego County Zoning Ordinance contains several ordinances that pertain to aesthetic character and resources. These are summarized below (County of San Diego, 2011b).

Sections 5200-5212, Scenic Area Regulations

San Diego County Zoning Ordinance Sections 5200-5212 serve to regulate development in areas of scenic value in order to exclude incompatible uses and structures, and preserve scenic resources.

Sections 5750-5758, Community Design Review Area Regulations

San Diego County Zoning Ordinance Sections 5750-5758 include provisions to provide for the maintenance and enhancement of a community's individual visual character and identity. The provisions require that a site plan be submitted for development within those areas having a Community Design Review Area Special Designator. The provisions include exemptions to the site plan requirement for certain project types and provisions for granting a site plan waiver for Community Design Review. Currently, the community of Fallbrook has developed guidelines.

Sections 5900-5910, Adopted 11-18-81, Design Review Area Regulations

San Diego County Zoning Ordinance Sections 5900-5910 include provisions to ensure that future structures and development of a site will complement not only the site to be developed but also the surrounding areas and existing development. The provisions require that a site plan be submitted for certain discretionary project applications within those areas having a "D" zoning designator indicating the need for design review. The regulation requires that specific criteria be reviewed by the County of San Diego (County of San Diego, 2011b).

Section 6320, Amended by Ord. No. 9620 (New Series), Adopted 12-10-03, Humidity, Heat, Cold, and Glare

San Diego County Zoning Ordinance Section 6320 has performance standards for glare for all commercial and industrial uses in residential, commercial, and identified industrial zones. All commercial and industrial uses subject to this section shall be operated in a manner that does not produce glare, which is readily detectable without instruments by the average person beyond the stated zones in this section (County of San Diego, 2011b).

Section 6322, Amended by Ord. No. 7110 (New Series), Adopted 4-02-86, Outdoor Lighting

San Diego County Zoning Ordinance Section 6322 controls excessive or unnecessary outdoor light emissions which produce unwanted illumination of adjacent properties by restricting outdoor lighting usage (County of San Diego, 2011b).

Section 6324, Amended by Ord. No. 9690 (New Series), Adopted 12-15-04, Lighting Permitted in Required Yard

San Diego County Zoning Ordinance Section 6324 establishes limitations upon lighting permitted in required yards by Section 4835; of particular importance is the limitation upon light trespass (County of San Diego, 2011b).

Fallbrook Community Plan

The Fallbrook Community Plan was adopted in August 2011 as an integral part of the County of San Diego General Plan. The Plan contains goals and policies to provide a framework for addressing the critical issues and concerns that are unique to the community that are not reflected in the broader policies of the General Plan. The Fallbrook Community Plan is consistent with all other parts of the County's General Plan. Used in conjunction with the General Plan, the Community Plan is a key tool for the public, Community Planning/Sponsor Groups, County staff, and decision makers to identify the existing conditions and development that positively contribute to its character and should be conserved, as well as the location, scale, and design of desired new land uses, and community facilities. The Plan's policies require that development be comparable to, or transition with, existing development to ensure that new development "fits" with the community and enhances the community's vision (County of San Diego, 2011c). Goals and policies that are applicable to the proposed project are below.

> **Goal LU 2.4:** New development within Fallbrook that is designed to be sensitive to the community character, while encouraging the upgrade and beautification of existing development.
>
> > **Policy LU 2.4.1:** Require development to preserve viable mature trees and significant land forms in all public and private development projects, to the maximum extent feasible.
> >
> > **Policy LU 2.4.3:** Require on and off-site signs to compliment the aesthetic value and character of the community.
> >
> > **Policy LU 2.4.:4** Encourage a "Village Style "architecture, described as Craftsman, Victorian, Ranch, Colonial, Cottage Mission and Spanish architectural styles and utilization of building materials such as wood (simulated, non-combustible) rock, brick, stone or similar materials which are in harmony with the natural environment. These requirements aim to maintain and promote the intimate personal scale of the Village, its character, and warmth.

3.1.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to aesthetics if it would:

- Have a substantial adverse effect on a scenic vista (see Section 4.1 in Chapter 4.0, Other CEQA Considerations);
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway (see Section 4.1 in Chapter 4.0, Other CEQA Considerations);
- Substantially degrade the existing visual character or quality of the site and its surroundings (see Impact 3.1-1, below); or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area (see Impact 3.1-2, below).

Please see Chapter 4.1, *Impacts Found Not to Be Significant*, of this Draft EIR, for a discussion of other issues associated with the evaluation of aesthetics where the characteristics of the project made it clear that effects would not be significant and further evaluation in this section was not warranted.

3.1.4 Methodology

Aesthetics generally refers to the identification of visual resources and the quality of what can be seen, as well as an overall visual perception of the environment. The significance determination for the aesthetics analysis is based on consideration of the following: (1) the degree of visual contrast and compatibility in scale and character between project elements and the existing surroundings; (2) the extent of change related to project visibility from key public vantage points; and (3) project conformance with public policies regarding visual and urban design quality.

Aesthetic impacts related to light and glare were assessed by measuring changes in light trespass and glare as a result of the project. These two technical terms are defined by the Illuminating Engineering Society of North America (IESNA) as follows:

> **Light Trespass**[3] is the light that falls on a property but originates on an adjacent property. Light Trespass is measured in terms of illuminance (foot-candles or metric units lux), and can be measured at any point and at in any direction. Where Light Trespass is evaluated the illuminance is measured perpendicular to the source of light, toward the source of light, at the property line, or the location where light is causing an issue, such as a residential window or balcony.
>
> **Glare**[4] occurs when either the luminance is too high or the range of brightness in a visual field is too large. A bright light source, such as a flood light or street light, viewed against a dark sky may be uncomfortable to look at, and may create a temporary sensation of blindness, which is referred to as disability glare. Glare is evaluated by measuring the luminance (footlamberts or metric units candelas/m^2) at the source of light, such as a digital display, in comparison to the surrounding adjacent luminance. The term which describes the extent of glare at an observer position for a view is referred to as contrast, and is determined by the variation of luminance within the field of view. "High," "Medium," and "Low" contrast are terms used to describe contrast ratios. The ratio of peak measured luminance to the average within a field of view: contrast ratios greater than 30:1, between 10:1 and 30:1, and below 10:1, respectively. Contrast ratios above 30:1 are generally uncomfortable for the human eye to perceive. Any source luminance that is more than 50 times the adjacent background will be viewed as prominent, and may be viewed as distracting.

Light Trespass is evaluated at night. Glare may occur either during the day or at night.

Glare occurs during daytime when sunlight is reflected from auto windshields or chrome, or from building windows, or from metal surfaces. Daytime glare from reflected sunlight is common,

[3] IESNA Handbook, 10th Edition, 19.3: Light Pollution and Trespass, page 19.7
[4] IESNA Handbook, 10th Edition, 4.10: Glare, page 4.25

because the reflected image of the sun, even if only a small fraction of the incident sunlight is reflected, typically is too bright to view directly. In addition to the potential to damage eyesight, the visual contrast is so high that it may not be possible to see other nearby objects within the same field of view as the reflected sun image. Due to the nature of the built environment and the constrained path that the sun traces in the sky, the most frequent encounters with glare involve sun reflections from car windows, on the road and in parking lots, because car windows typically are both curved and inclined. This leads to a substantial range of circumstances and times of day when sunlight from cars, moving or parked, can be reflected directly at drivers and pedestrians nearby. Glare from cars in a parking lot can result in multiple reflections, from a number of cars, making the effect unpleasant even from some distance.

Sun reflections from large building windows, which are typically flat and vertical, can strongly affect nearby ground-level spaces on all but the north sides of a building. On the south side, the combined intensity of the reflected sun adds to the incident direct sunlight, and the can make nearby ground-level spaces unpleasant. Further, vertical windows on the south sides of buildings cannot cast sun glare far from the building, and those on the east and west sides of buildings have little capability to do so. On the other hand, if a building window were inclined from vertical, the potential would exist to cast reflections of the sun horizontally for large distances or even upward into the sky.

3.1.5 Impact Analysis

Visual Character

Impact 3.1-1: The project would not substantially degrade the existing visual character or quality of the site and its surroundings.

Construction

As described in Chapter 2.0, *Project Description*, construction of the proposed project is proposed in two (2) phases and each phase is anticipated to last approximately two (2) years. Construction–related activities include the following: site preparation, grading, paving, and construction of structures and infrastructure. Motorists traveling along Gird Road, patrons at the golf course, and adjacent residences to the north and east would have views of construction activities. During project construction, activities would alter the character of the project site and its surroundings. Graded surfaces, construction materials, construction equipment, and truck traffic would be visible. Soil would be stockpiled and equipment for grading activities would be staged on the project site. Additionally, portions of the site are partially screened from view due to sloping topography (the onsite elevation ranges from 265 to 288 amsl) and vegetation. Construction-related visual impacts would be typical of other construction activities throughout the county and would not be constant over the entire construction period because construction activities would be phased. Additionally, these impacts would cease once construction is completed. As described in Section 2.0, the proposed project's architecture has been developed to be consistent with the Fallbrook/Bonsall community and compatible with surrounding developed areas.

Therefore, because of the temporary nature of construction-related activities and partially screened views of the project site, potential impacts to visual character would be less than significant.

Operation

The project would convert vacant land to a high school campus, comprised of one administration building, four classrooms buildings, one gymnasium, parking lot, recreational fields, and landscaped areas. The project would alter the existing visual character of the site in that an undeveloped property would be developed and landscaped. Development of the project site includes retaining all mature coast live oak trees on site. Small onsite trees will be relocated or replaced at an enhanced ratio, where required. These trees would screen some views of the site. Additionally, portions of the site would be partially screened from view due to undisturbed topography (the onsite elevation ranges from 265 to 288 amsl) and vegetation.

The following discussion evaluates how project implementation would affect the visual character and quality of the project site and surrounding area.

- **Viewpoint #1: Looking south from Cedar Vale Way and Residences:** Proposed project setbacks along the northern boundary would provide a consistent visual theme of natural hills, grass, and oak tree stands. The closest residences to the north would be 300 feet from the development area and the closest golf course home would be 1,000 feet northwest. Portions of the two-story classroom building would be visible from these viewpoints; however, views of the site from these receptors would be at least partially screened by trees and vegetation. The project would not substantially obstruct views of the San Marcos Hills visible in the background to the south. Preservation of existing stands of native trees and avoidance of natural areas would appear similar to the surrounding development. Therefore, while development of the project would result in visual changes as viewed from Viewpoint #1, such development would not be considered a substantial degradation of the existing visual character of quality of the site due to planned setbacks, retention of existing trees and habitat, and screening provided by topography and vegetation. As such impacts would be less than significant.
- **Viewpoint #2: Looking West from Gird Road:** Existing and proposed project topography and building setback from Gird Road would provide a consistent visual buffer for the project and would not be substantially different than existing views from this viewpoint. The proposed access driveway would be visible from Gird Road. Further, as shown on the site plan, the project would retain existing stands of native oak trees and open space along Gird Road. Therefore, existing topography and vegetation would provide visual screening of the new development from viewpoints along Gird Road. The closest project-related building to Gird Road would be located about 700 feet east. The retention of native trees and the existing topography would visually buffer views of the proposed development. The project would not substantially degrade the existing visual character or quality of the site and its surroundings from Viewpoint #2. As such impacts would be less than significant.
- **Viewpoint #3: Looking Northwest from SR 76:** The proposed project would be about 0.4-mile north of SR-76. Views of the project site would be screened by existing topography and vegetation/trees. Therefore, the project would not substantially degrade the existing visual character or quality of the site and its surroundings from Viewpoint #3. As such impacts would be less than significant.

- **Viewpoint #4 Looking East from Flowerwood Lane and Golf Course:** As described in Chapter 2, *Project Description*, portions of the golf course are located on the project site. The school buildings would not be visible from the golf course clubhouse because it is located about 1,000 feet west and the proposed buildings would be screened by existing stands of trees on the golf course property and on the project site.

Development of the project, and the visual changes that would result, would not be out of character for the County of San Diego and the Fallbrook Community Area, where developments in the area, such as residential, commercial, educational, and recreational are a common visual theme. Although implementation of the project would alter the visual character of the site and surroundings, such changes are not anticipated to represent a substantial degradation of the visual character or quality because the project would complement the existing character of the area by providing high quality building design and landscaping. Additionally, views of the site would be at least partially screened by existing topography, trees and vegetation. As a result, the proposed project would not substantially degrade the existing visual character of the site or surrounding area, and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Light and Glare

Impact 3.1-2: The project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

The project site is currently undeveloped and does not contain any lighting. The project is located within a semi-rural area with a residential neighborhood to the north and a golf course to the west.

The project would introduce new sources of lighting to the project area, which would include building-mounted, wall-mounted, and pole-mounted fixtures to illuminate entrances, walkways, corridors, storage areas, and surface parking areas. The project would also include a campus monument identification sign and exterior electronic display. Furthermore, all outdoor lighting would be designed to be in compliance with Section 6300 of the San Diego County Code. The project would add new nighttime lighting within the project site, increasing illumination levels of the existing setting. BUSD is not proposing any athletic field night lighting.

Although the proposed project would increase light levels on site, project lighting would comply with County and State lighting standards that limit off-site light spill by controlling light intensity and by shielding onsite light sources. Therefore, the project's ambient lighting would not create substantial contrast with overall semi-rural lighting conditions in the surrounding area.

Glare from sunlight reflected from project windows and metallic materials would be a short-range effect, due to the orientation of the buildings, location of windows and the apparent path of the sun in the sky throughout the year. Glare from sunlight reflected from east-facing or west-facing

windows and metallic materials would be limited, occurring only when the sun is very low in the sky, primarily in the first half hour after sunrise or the last half hour before sunset. Glare in the early morning would be directed eastward and downward. It may be visible to motorists along Gird Road, but it would be off-axis, insufficiently bright, and obscured by trees and topography to distract attention or impair vision. Glare just before sunset would be directed westward and downward, so would be obscured by dense tree stands on the golf course. Therefore, the project would not create a new source of substantial light which would adversely affect day or nighttime views in the area.

Glare from sunlight reflected from parked cars can result in unwanted potentially objectionable sensation, but it is typically not sufficient to cause continuing vision problems unless they are in the immediate field of view. Driving or walking into a parking lot in bright sun can result in short-term glare that can be uncomfortable, but not harmful. The project would include trees in parking lots to provide shading. Therefore, glare from proposed project features would not represent a new source of substantial glare, and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

3.1.6 Cumulative Impact Analysis

Visual Character

Construction activities associated with development of the proposed project and nearby cumulative projects would temporarily alter the visual character and quality of the area. Cumulative projects are listed in Table 3-1 of this Draft EIR. Temporary visual impacts would be associated with construction of these cumulative projects which could include exposed building pads, staging areas, onsite storage, use of large equipment, temporary storage areas, and stockpiles. Because these effects would be temporary, they would not significantly degrade the visual character or quality of the area. Therefore, impacts of the proposed project would not combine with those of cumulative projects to result in a significant impact associated with visual character and quality during construction activities.

It is anticipated that future development within the project area would result in changes to the existing land use environment through conversion of vacant land to developed uses or through conversion of existing land uses to different uses. These changes could result in a change to the visual character of the Fallbrook Community and surrounding Bonsall Community. The County of San Diego has adopted design guidelines for each CPA in order to ensure that development is visually complementary to the surrounding uses. Cumulative projects would be designed to be consistent with the General Plan/Community Plans, and undergo appropriate design review. Therefore, the cumulative projects would not result in significant cumulative changes related to the visual character and quality of the project area.

The proposed project would be designed to be consistent with the County's design guidelines for similar land uses; therefore, the proposed project would be complimentary to the surrounding project area and would not result in a substantial adverse change in the existing visual character and quality of the project area. The proposed project, in conjunction with other cumulative development would result in less than significant cumulative impacts.

Light and Glare

The project in combination with existing development, present projects and reasonably foreseeable projects in the geographic area identified above would result in increased sources of light and glare from building and parking lot lighting, roadway lighting, and limited amounts of reflective materials that may be used for accent purposes.

These sources of light and glare would be typical of other lighting sources in semi-rural and suburban areas. Similar to the project, past and current projects have undergone and future projects would undergo environmental and design review to address impacts from new sources of light and glare, which would ensure that lighting design and the use of building surfaces would be chosen to avoid significant adverse light and glare impacts. Cumulative light and glare conditions would not substantially affect views of the scenic vistas or views from areas surrounding the site looking towards other open areas, as daytime lighting would be minimal. These views are not visible at nighttime, and the project would implement measures to minimize lighting and reduce light spillage. The project would not introduce excessive light skyward. As such, impacts of the proposed project would not combine with impacts of other development to result in significant cumulative impacts.

3.1.7 References

County of San Diego, 2011a. San Diego County General Plan, Chapter 5 Conservation and Open Space Element. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/gpupdate/docs/GP/ConservationandOpenSpace.pdf, accessed October 23, 2017.

County of San Diego, 2011b. San Diego County General Plan Update, Final Environmental Impact Report., 2.1 Aesthetics. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/gpupdate/docs/BOS_Aug2011/EIR/FEIR_2.01_-_Aesthetics_2011.pdf, accessed October 23, 2017.

County of San Diego, 2011c. County of San Diego General Plan Update, Fallbrook Community Plan. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/docs/CP/Fallbrook_CP.pdf, accessed October 23, 2017.

County of San Diego, 2017. American Legal Publishing Corporation. Chapter 2, Light Pollution. Available at: http://library.amlegal.com/nxt/gateway.dll?f=templates&fn=default.htm&vid=amlegal:sandiegoco_ca_mc, accessed October 23, 2017.

3.2 Agricultural Resources

This section evaluates potential impacts related to the conversion of farmland to non-agricultural use.

3.2.1 Environmental Setting

The project site is surrounded by single-family residential uses to the north, a golf course to the west and south, and agricultural operations to the east. The project site is located approximately 0.4 miles north of the intersection of State Route 76 (SR-76) and Gird Road within the unincorporated community of Fallbrook in north-central San Diego County. The project site is designated Public/Semi-Public Facilities by the San Diego County General Plan Fallbrook Community Plan and is zoned Limited Agriculture. The project site is currently vacant. Surrounding General Plan land uses are Village Core Mixed Use to the north, west, and south and Semi-Rural Residential to the east. The properties to the east also support agricultural uses.

Farmland

The project site contains no Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. The project site is designated by the California Department of Conservation as Farmland of Local Importance (DOC, 2016). Farmland of Local Importance is defined by each county's local advisory committee and adopted by its Board of Supervisors. Farmland of Local Importance is either currently producing, or has the capability of production, but does not meet the criteria of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Authority to adopt or to recommend changes to the category of Farmland of Local Importance rests with the Board of Supervisors in each county. According to the San Diego County General Plan, Farmland of Local Importance is defined as the following:

- Land that meets the characteristics of Prime and Statewide Importance with the exception of irrigation.
- Farmlands not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance but are of significant economic importance to the County.
- Farmlands that have a history of good production for locally adapted crops.
- Lands that contain soils grouped in types that are suited for truck crops (such as tomatoes, strawberries, cucumbers, potatoes, celery, squash, romaine lettuce, and cauliflower) and soils suited for orchard crops (avocados and citrus).

The project site has remained undeveloped from at least 1938 based upon historic aerial photographs and there is no indication of a history of agricultural use on the site. Adjacent lands to the north, west, and south consist of Urban and Built-Up Land and lands to the east consist of Other Land. There is a small agricultural operation located east of the project site, easterly of Gird Road.

3.2.2 Regulatory Setting

State

Farmland Mapping and Monitoring Program

Established in 1982, the Farmland Mapping and Monitoring Program (FMMP), per California Government Code Section 65570, produces maps and data used for the analysis of impacts on California's agricultural resources. Important Farmland Maps combine information with the US Department of Agriculture Natural Resources Conservation Service (NRCS) soil survey data to create designations of farmland importance. The FMMP identifies land use categories in the following order of importance, from most important to least important: Prime Farmland, Farmland of Statewide Importance, Unique Farmland of Local Importance, Grazing Land, Urban Built-Up Land, Other Land, and Water.

Land Conservation Act

Known formally as the California Land Conservation Act of 1965, the Williamson Act acts as an incentive to retain prime agricultural land and open space in agricultural use, thereby slowing its conversion to urban and suburban development. The project site and immediately adjacent lands are not under Williamson Act contracts (DOC, 2013).

Local

In San Diego County, regulations and plans have been adopted which define and provide protection to certain types of sensitive resources. The following County plans address sensitive resources for development projects that are required to be processed through the San Diego County Planning and Development Services Department. Pursuant to Government Code Section 53094, the project is exempt from the County's zoning ordinances although the project would be consistent with the following County plans:

San Diego County General Plan

The San Diego County General Plan is a framework for the future growth and development of the unincorporated areas of San Diego County. It is based on a set of guiding principles designed to protect the County's unique and diverse natural resources. It reflects an environmentally sustainable approach to planning that balances the need for adequate infrastructure, housing, and economic vitality, while maintaining and preserving each unique community within the County, agricultural areas, and extensive open space.

The Conservation and Open Space Element states that agriculture in the County provides an array of economic, environmental, and social benefits that contribute to the quality of life in the region. The climate in much of the County supports year-round growing and facilities successful small farms and crop diversification. The following goal and policies of the Conservation and Open Space Element are applicable to the proposed project.

> **Goal COS-6: Sustainable Agricultural Industry.** A viable and long-term agricultural industry and sustainable agricultural land uses in the County of San Diego that serve as a beneficial resource and contributor to the County's rural character and open space network.

Policy COS-6.1: Economic Diversity. Support the economic competitiveness of agriculture and encourage the diversification of potential sources of farm income, including value added products, agricultural tourism, roadside stands, organic farming, and farmers' markets.

Policy COS-6.2: Protection of Agricultural Operations. Protect existing agricultural operations from encroachment of incompatible land uses by doing the following:

- Limiting the ability of new development to take actions to limit existing agricultural uses by informing and educating new projects as to the potential impacts from agricultural operations.
- Encouraging new or expanded agricultural land uses to provide a buffer of non-intensive agriculture or other appropriate uses (e.g., landscape screening) between intensive uses and adjacent non-agricultural land uses.
- Allowing for agricultural uses in agricultural areas and designing development and lots in a manner that facilitates continued agricultural use within the development.
- Requiring development to minimize potential conflicts with adjacent agricultural operations through the incorporation of adequate buffers, setbacks, and project design measures to protect surrounding agriculture.
- Supporting local and State right-to-farm regulations.
- Retain or facilitate large and contiguous agricultural operations by consolidation of development during the subdivision process.

Policy COS-6.3: Compatibility with Recreation and Open Space. Encourage siting recreational and open space uses and multi-use trails that are compatible with agriculture adjacent to the agricultural lands when planning for development adjacent to agricultural land uses.

Fallbrook Community Plan

The purpose of the Community plan, adopted as an integral parts of the County of San Diego's General Plan, are policy plans specifically created to address the issues, characteristics, and visions of communities within the County. Used in conjunction with the General Plan, a community plan is a key tool for the public, Community Planning/Sponsor Groups, County staff, and decision makers to identify the existing conditions and development that positively contribute to its character and should be conserved, as well as the location, scale, and design of desired new land uses, and community facilities.

The Conservation and Open Space Element of the Fallbrook Community Plan include the following goals and policies that are applicable to the proposed project:

Issue COS 1.1: Light agricultural uses need to be supported because agriculture is an important component in the economic base of Fallbrook and will continue to be in the future.

Goal COS 1.1: Agriculture and agriculturally-oriented services that promote agriculture as an important component in the economic base of Fallbrook.

Policy COS 1.1.1: Encourage development of combined agriculture and residential uses.

Policy COS 1.1.2: Discourage intensive commercial livestock operations and types of agricultural processing which may be detrimental to the residential population, and require buffers for new residential development from existing intensive agricultural operations.

3.2.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to agricultural resources if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use (see Impact 3.2-1, below);
- Conflict with existing zoning for agricultural use, or a Williamson Act contract (see Impact 3.2-2, below);
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)) (see Section 4.1 in Chapter 4.0, Other CEQA Considerations);
- Result in the loss of forest land or conversion of forest land to non-forest use (see Section 4.1 in Chapter 4.0, Other CEQA Considerations); or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use (see Impact 3.2-3, below).

Please see Chapter 4.1, *Impacts Found Not to Be Significant*, of this Draft EIR, for a discussion of other issues associated with the evaluation of agricultural resources where the characteristics of the project made it clear that effects would not be significant and further evaluation in this section was not warranted.

3.2.4 Methodology

The California Department of Conservation (DOC) developed the Land Evaluation and Site Assessment (LESA) model as a result of Senate Bill 850 (Chapter 812 /1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, with developing an amendment to Appendix G of the CEQA Guidelines concerning agricultural lands. Such an amendment is intended "to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process" (Public Resources Code Section 21095). The LESA model measures a project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands to determine a project's potential significance. According to the County of San Diego, the LESA model does not adequately capture the unique and varied character of San Diego agriculture (SD County 2015). As a result, the Local Agricultural Resource Assessment (LARA) model has been developed to assess the value of agricultural resources in San Diego County, even though the proposed project is not

subject to San Diego County agricultural modeling requirements. The LARA model focuses on evaluating the quality of a site's physical agricultural resources and recognizes that the agricultural industry will change in response to markets and economic conditions over time. The LARA Model takes into account the following factors in determining the importance of the agricultural resource:

Required Factors	Complementary Factors
• Water	• Surrounding Land Uses
• Climate	• Land Use Consistency
• Soil Quality	• Topography

This analysis follows the County's *Guidelines for Determining Significance: Agricultural Resources (Guidelines)* to determine a rating for the both the required and complementary factors, and a determination of the agricultural resource significance of the project site. The LARA model is used by the County's Land Use and Environment Group when processing discretionary projects. The County has no discretionary approval authority over the project, but nonetheless the project is analyzed for consistency with the Guidelines under CEQA. Section 1.4.2 of the County's Guidelines defines "agricultural resource" to "include active agricultural operations, areas of the site designated as an FMMP Important Farmland Category (that meets the definition of the FMMP designation), and areas of the site with a history of agricultural production based on aerial photography or other data sources identifying agricultural land uses." Where no agricultural resources are located onsite, no further analysis under the LARA model is required under the County's Guidelines.

Where agricultural resources are located onsite, to determine the agricultural significance of the project site, the County's *Guidelines* provides the following matrix (**Table 3.2-1**), Interpretation of LARA Model Results. These summarized finding are described and expanded upon in the following sections of this analysis.

TABLE 3.2-1
INTERPRETATION OF LARA MODEL RESULTS

	LARA Model Results		
Possible Scenarios	**Required Factors**	**Complementary Factors**	**LARA Model Interpretation**
Scenario 1	All three factors rated high	At least one factor rated high or moderate	The site is an important agricultural resource
Scenario 2	Two factors rated high, one factor rated moderate	At least two factors rated high or moderate	
Scenario 3	One factor rated high, two factors rated moderate	At least two factors rated high	
Scenario 4	All factors rated moderate	All factors rated high	
Scenario 5	At least one factor rated low	N/A	The site is not an important agricultural resource
Scenario 6	All other model results		

3.2.5 Impact Analysis

Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to Non-Agricultural Use

Impact 3.2-1: The project could convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

Implementation of the proposed project would result in changes to the existing environment which could result in conversion of Farmland to non-agricultural use. Farmland conversion can occur through direct and indirect changes to the environment. Direct changes involve changing existing agricultural uses to other uses. Indirect changes involve changes that can cause surrounding agricultural uses to lose viability. Program-level changes can also occur where land use designations are changed from agricultural uses to other uses to promote long-term conversion of land. The project may incorporate horticultural components into the areas proposed for landscaping.

The project site contains no Prime Farmland, Farmland of Statewide Importance, or Unique Farmland identified in the thresholds of significance in Appendix G of the State CEQA Guidelines; however, the project site is designated by the California Department of Conservation as Farmland of Local Importance (DOC, 2016).

Section 1.4.2 of the County's Guidelines defines "agricultural resource" to "include active agricultural operations, areas of the site designated as an FMMP Important Farmland Category (that meets the definition of the FMMP designation), and areas of the site with a history of agricultural production based on aerial photography or other data sources identifying agricultural land uses. The proposed project would not result in the conversion of Prime Farmland or Farmland of Statewide Importance. Further, the Project site does not have a history of agricultural use and it is unlikely the site would be used for agricultural purposes in the future. Therefore, no local "agricultural resource" is located on the proposed project site under Section 1.4.2 of the County's Guidelines for addressing agricultural impacts, no direct impacts would occur, and no further analysis is required.

None the less, as discussed in section 3.2.4 (for informational purposes), ratings for water, climate, and soil quality are assessed under the County's LARA model factors for assessing direct impacts of the project including three required factors to determine whether or not the project site is a significant agricultural resource. The following discussion of the LARA Model results includes these three "required" factors (water, climate and soil quality) as well as the three "complementary" factors: surrounding land use, land use consistency, and slope. This discussion provides the rating for each as well as the information that supports the rating determination.

Required Factors

Water

The LARA Model water rating is based on a combination of the site's service status with the County Water Authority (CWA), the underlying groundwater aquifer type, and the presence of a groundwater well. The project site is served by the Rainbow Municipal Water District which is a member agency of the CWA. An onsite 4-inch water meter is located onsite. The project site is inside the CWA service with existing water infrastructure connections. Thus, the water rating is high.

Climate

The proposed project is in Generalized Western Plant Climate Zone 21. According to the County's *Guidelines,* Zone 21 is an air-drained thermal belt that is suitable for citrus and is the mildest zone that gets adequate winter chilling for some plants. The low temperatures within this zone range from 23 to 36 degrees Fahrenheit (F), with temperatures rarely dropping far below 30 degrees F. Zone 21 has a high rating according to the LARA Model.

Zone 21 is rated high because of the mild year-round temperatures and lack of freezing temperatures that allow year round production of high value crops. The importance of this zone is also related to the conversion pressure that exists due to urban encroachment. The loss of significant agricultural lands in Zone 21 would eventually relegate agriculture to areas further east where most of the County's high value crops cannot be viably produced.

Soil Quality

The project's soil quality rating is based on the presence of Prime Farmland Soils or Soils of Statewide Significance that are available for agricultural use and that have been previously used for agriculture. Land covered by structures, roads, or other uses are not typically considered in the soil quality rating. To determine the soil quality rating, the soil types on the project site must be identified and entered into the Soil Quality Matrix as outlined in the *Guidelines*. According to the *Guidelines*, soils unavailable for agricultural use include lands that are primarily a biological habitat type that have never been used for agriculture. The project site contains suitable and marginal habitat; however, these areas have not been discounted as unavailable land to provide a worst-case analysis.

As shown in

Table 3.2-2, the project's Soil Quality Matrix score is 0.76, which means the project has a high rating for soil quality. **Table 3.2-3** contains the Soil Quality Matrix Interpretation. **Appendix B** of this Draft EIR contains the LARA model calculations.

TABLE 3.2-2
SOIL QUALITY MATRIX

	Column A	Column B	Column C	Column D	Column E	Column F	Column G
Row	Soil Type	Size of project site (acreage)*	Unavailable for agricultural use	Available for agricultural use	Proportion of project site	Is soil candidate for prime farmland or farmland of statewide significance? (Yes = 1, No = 0)	Multiply Column E by Column F
1	AtD	1.8	0	1.8	0.04	1	0.037
2	GoA	2.0	0	2.0	0.04	1	0.041
3	RaC	33.5	0	33.5	0.68	1	0.700
4	RaD2	10.9	0	10.9	0.24	0	0
	Total	**48.2**	**Total**	**48.2**			
						Soil Quality Matrix Score	**0.77**

* The gross site area is 50.18 acres. An approximate site area of 48.2 acres is estimated using the Natural Resources Conservation Service Web Soil Survey system, where an exact site boundary is not able to be drawn.

TABLE 3.2-3
SOIL QUALITY MATRIX INTERPRETATION

Soil Quality Matrix Score	Soil Quality Rating
The site has a Soil Quality Matrix score ranging from 0.66 to 1.0 and has a minimum of 10 acres of contiguous Prime Farmland or Statewide Importance Soils.	High
The site has a Soil Quality Matrix score ranging from 0.33 to 0.66 or the site has a minimum of 10 acres of contiguous Prime Farmland or Statewide Importance Soils.	Moderate
The site has a Soil Quality Matrix score less than 0.33 and does not have 10 acres or more of contiguous Prime Farmland or Statewide Importance Soils.	Low

Complementary Factors

Surrounding Land Use

Surrounding land use is a factor in determining the importance of an agricultural resource because surrounding land uses that are compatible with agriculture make a site more attractive for agricultural use due to lower expectations of nuisance issues and other potential impacts from non-farm neighbors. Surrounding land use is a complementary factor in the LARA model because the presence of compatible surrounding land use can support the viability of an agricultural operation; however, a lack of compatible surrounding land uses would not usually prohibit productive agriculture from taking place.

Existing land uses in the surrounding area include recreational (golf course), rural semi-rural residential, light agriculture, and field and orchard crops. For the LARA Model, the project's Zone of Influence (ZOI) is defined as the area within a quarter-mile of the project site, and any parcels that intersect the quarter-mile boundary. If the percentage of land within the ZOI that is

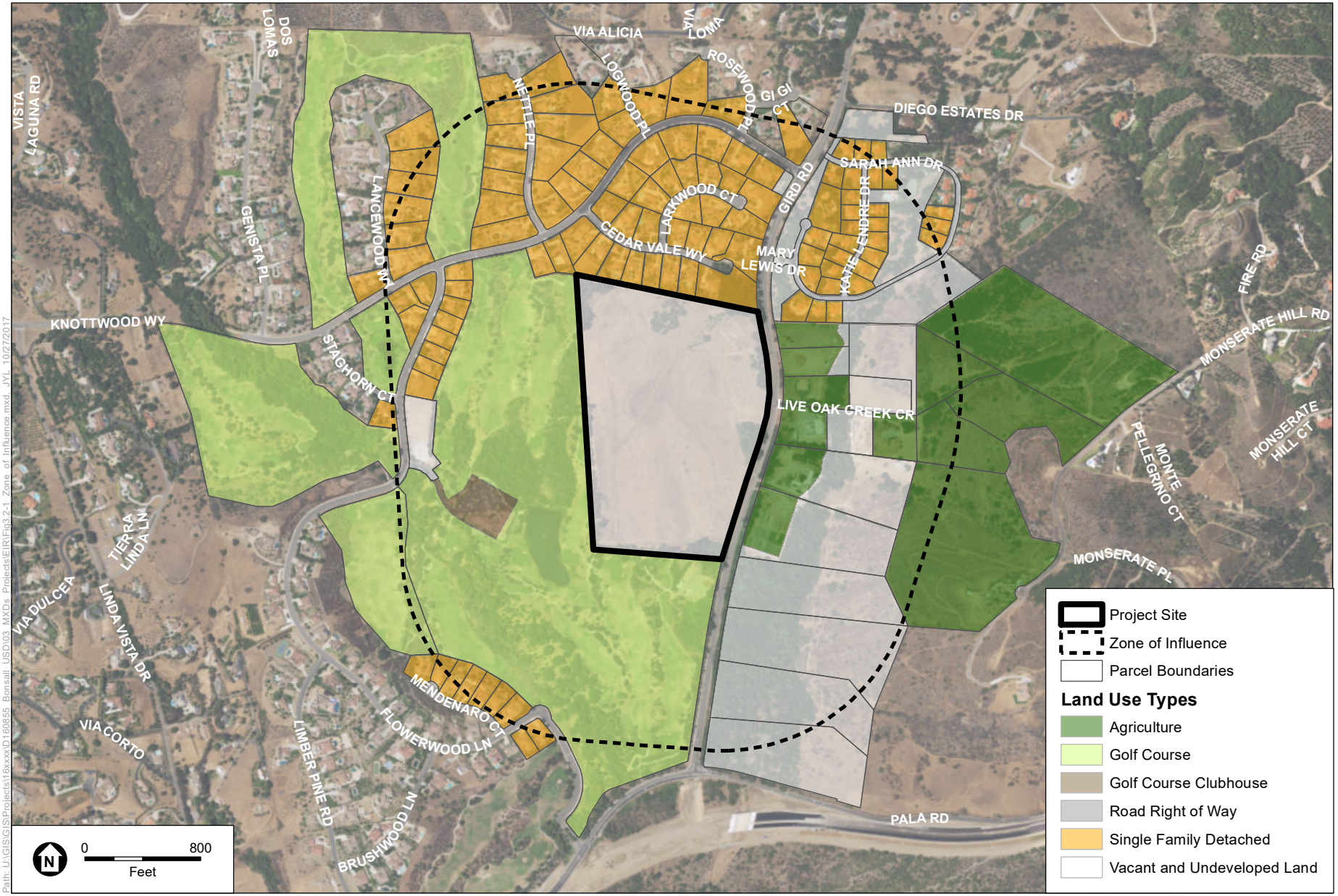
compatible with agriculture is greater than 50 percent, the project's Surrounding Land Use rating is high. If the percentage is greater than 25 percent but less than 50 percent, the rating is moderate, and if the percentage is less than 25 percent, the rating is low. **Figure 3.2-1** displays the ZOI and land uses within the ZOI for the proposed project. The percentage of land within the project's ZOI that is zoned for and/or compatible with agriculture is approximately 43 percent, which corresponds to a Surrounding Land Use rating of moderate.

Land Use Consistency

Land use consistency is used to measure the effect that surrounding urbanization has on the viability of ongoing agricultural uses. A site surrounded by larger parcels indicates that the site is located in an area that has not already been significantly urbanized and the area is more likely to continue to support viable agricultural uses. On the other hand, a site surrounded by smaller parcels indicates a lower likelihood of ongoing commercial agriculture viability. Figure 3.2-1 displays the ZOI with parcel boundaries for the proposed project. The project's parcel size of 50.18 acres is larger than the median parcel size within the project's ZOI (0.72 acres) by more than 10 acres, which, as shown in Table 3.2-3 means the project's Land Use Consistency rating is low. A small agricultural operation is located east of the project site.

Slope

Slope is included as a complementary factor in the LARA model to account for the important role of slope in the viability of a piece of land for agricultural production, because a flat site allows for a greater range of potential agricultural uses and facilitates mechanization of operations. A slope of less than 15 percent would have a high topography rating, a slope between 15 and 25 percent a moderate rating, and a slope over 25 percent would have a low rating. Soil data were used to determine the slope rating. The soil types of land available for agricultural use within the project boundary and the slope of each soil type was determined. This information is then averaged and used to determine the slope rating for the project site. The average slope of the proposed project is 10.25 percent, and thus, the topography rating is high.



Path: U:\GIS\GIS\Projects\16xxxx\D160855 Bonsall USD\03 MXDs Projects\EIR\Fig3.2-1 Zone of Influence.mxd JYL 10/27/2017

SOURCE: ESRI; SanGIS

Bonsall High School / BUSD

Figure 3.2-1
Zone of Influence

ESA

Table 3.2-4, below, provides the LARA Model results for the proposed project. Because all "Required Factors" are rated high, the proposed project site falls within Scenario 1, and would be considered a potentially important agricultural resource if there was history of such use under the County's significance criteria.

TABLE 3.2-4
LARA MODEL RESULTS

	Rating
Required Factor	
Water	High
Climate	High
Soil Quality	High
Complementary Factor	
Surrounding Land Use	Moderate
Land Use Consistency	Low
Slope	High
Interpretation	
This site is not an important agricultural resource due to lack of agricultural use history.	Scenario 1

Direct vs Indirect Impacts

The LARA Model quantifies and measures the direct impacts the proposed project would have on agricultural resources. As discussed above, the project site contains no Prime Farmland, Farmland of Statewide Importance, or Unique Farmland; however, the project site is designated by the California Department of Conservation as Farmland of Local Importance (DOC, 2016). The project site does not have a history of agricultural use and is currently vacant. Therefore, direct impacts to agricultural resources could not result under the County's significance criteria. However, indirect impacts to agricultural resources could result from the proposed project. Indirect impacts to nearby agricultural uses would not be significant under Section 3.1 of the County's Guidelines because the project does not have the potential to indirectly impact existing limited agricultural operations east of a major count roadway (Gird Road). Therefore, the proposed project would not result in any impacts to agriculture.

Mitigation Measures

No mitigation measures are required.

Significance Determination: No Impact, not applicable

Williamson Act

Impact 3.2-2: The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.

The project site and immediately adjacent properties are not under Williamson Act contracts (DOC 2013). The project site is surrounded by Urban and Built-Up Land and Non-Enrolled Land. Therefore, there would be no conflict with a Williamson Act contract. Although, the project site is currently zoned as Limited Agriculture (A70), the project is an allowable use under the A70 zoning designation. Therefore, the project would not conflict with an existing Williamson Act contract or zoning.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Conversion of Farmland to Non-Agricultural Use

Impact 3.2-3: The project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

The project site is zoned Limited Agricultural. The properties to the east are zoned Limited Agricultural. Potentially significant agricultural impacts are related to farmland conversion to non-agricultural land uses or non-agricultural development that would replace existing agricultural uses. The project site is not currently used for agriculture and has no history of agricultural use. Development of the proposed high school would not result in the conversion of potential farmland or forest land in the vicinity to non-agricultural use. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

3.2.6 Cumulative Impact Analysis

Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to Non-Agricultural Use

The context for assessing cumulative conversion of farmland to non-agricultural use is the presence of Farmland of Statewide importance and does not qualify as a Farmland of Local Importance because there is no history of agricultural use on the project site and it is unlikely that

the site would be used for agricultural use in the future. As such impacts would be less than significant and would not be cumulatively considerable.

Williamson Act

The context for assessing cumulative conflicts with existing zoning for agricultural use or Williamson Act contracts is the presence of such land. A significant impact would occur if project collectively converted land with active Williamson Act contracts or agricultural zoning to non-agricultural uses. The project site and adjacent properties are not under Williamson Act contracts and therefore the development of the project would not contribute to a cumulative loss of Williamson Act contracted land. Therefore, development of the project would not contribute to a cumulative loss of agriculturally zoned or contracted land. Impacts would be less than significant and would not be cumulatively considerable.

Conversion of Farmland to Non-Agricultural Use

The context for assessing cumulative conversion of farmland to non-agricultural use is the presence of agricultural use. Although the site is zoned Limited Agricultural, the project site is not currently used for agriculture and has no history of agricultural use. Therefore, development of the project would not contribute to a cumulative conversion of farmland to non-agricultural use.

3.2.7 References

California Department of Conservation (DOC), 2016. Farmland Mapping and Monitoring Program, San Diego Important Farmland 2014 – Sheet 1 of 2, November 2016. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2014/sdg14_w.pdf, accessed August 2017.

———, 2013. San Diego County Williamson Act 2013/2014 – Sheet 1 of 2. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/San_Diego_w_13_14_WA.pdf, accessed August 2017.

Padre Associates, Inc, 2016. *Phase I Environmental Site Assessment and Title V Environmental Hazards Evaluation, New School Site, West of Gird Road and Live Oak Creek Circle, Fallbrook, San Diego County, California.* May 2016.

San Diego County (SD County), 2015. *Guidelines for Determining Significance and Report Format and Content Requirements – Agricultural Resources. 2015.*

———, 2011. *General Plan Update EIR, Page 2.2-36, Table 2.2-2 (FMMP Farmland Categories)*. August 2011.

3.3 Air Quality

This section evaluates potential impacts related to air emissions generated by construction and operation of the proposed project. The analysis also addresses consistency of the project with air quality policies set forth within the San Diego Air Pollution Control District's (SDAPCD) Regional Air Quality Strategy (RAQS). The analysis of project-generated air emissions focuses on whether the project would cause exceedance of an ambient air quality standard or a SDAPCD significance threshold.

3.3.1 Environmental Setting

Regional Context

Climate and Meteorology

The proposed project is located in the San Diego Air Basin (SDAB) whose borders are contiguous with that of San Diego County. The topography in the SDAB varies greatly, from beaches on the west to mountains and desert on the east, defined by mesa tops intersected by canyon areas. The topography in the SDAB, along with local meteorology, influences the dispersal and movement of pollutants in the SDAB. The mountains to the east prohibit dispersal of pollutants beyond them and help trap the pollutants in inversion layers.

The weather of the SDAB is influenced by the Pacific Ocean and its semi-permanent high-pressure systems (e.g., Pacific High) that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges from the mid-40s to the high 90s. Most of the County's precipitation falls from November to April, with infrequent (approximately 10 percent) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation, as moist air is lifted over the mountains.

The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and drives the prevailing winds. Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

In conjunction with the two characteristic onshore/offshore wind patterns, there are two types of temperature inversions (i.e., reversals of the normal decrease of temperature with height) which occur within the region that affect atmospheric dispersive capability and that act to degrade local air quality. In the summer, an inversion at approximately 1,100 to 2,500 feet is formed over the entire coastal plain when the warm air mass over land is undercut by a shallow layer of cool marine air flowing offshore. The prevailing sunny days in this region further exacerbate the smog problem by inducing additional adverse photochemical reactions. During the winter, a nightly shallow inversion layer (usually at approximately 800 feet) forms between the cooled air at the ground and the warmer air above, which can trap vehicular pollutants. For example, the days of highest CO concentrations occur during the winter months.

The predominant onshore/offshore wind pattern is sometimes interrupted by so-called Santa Ana conditions, when high pressure over the Nevada-Utah area overcomes the prevailing westerly winds, sending strong, steady, hot and dry winds from the east over the mountains and out over the Pacific Ocean. Strong Santa Ana winds tend to blow pollutants out over the ocean, producing clear days. However, at the onset or breakdown of these conditions, or if the Santa Ana is weak, prevailing northwesterly winds reassert themselves and send a cloud of contamination from the Los Angeles Basin ashore in the SDAB.

Based on past climate records from the Western Regional Climate Center (WRCC) monitoring stations located in Vista (Vista 2 NNE, California 049378) the average precipitation in the area ranges from 0.11 to 2.76 inches annually, occurring primarily from November through April (WRCC, 2017).

Regional Air Quality

The SDAB comprises the entire San Diego region. However, population and emissions are concentrated mainly in the western portion of the County. The SDAB covers approximately 4,200 square miles, includes approximately 8 percent of the state's population, and produces approximately 5 percent of the state's criteria pollutant emissions (CARB, 2013a).

Air quality in the SDAB is impacted not only by local emissions, but also by pollutants transported from other areas, in particular, ozone and ozone precursor emissions transported from the South Coast Air Basin and the Republic of Mexico. Although the impact of transport is particularly important on days with high ozone concentrations, transported pollutants and emissions cannot be blamed entirely for the ozone problem in the SDAB. Studies show that emissions from the SDAB are sufficient, on their own, to cause ozone violations (SDAPCD, 2007).

As in other parts of California, overall air quality in the SDAB has improved, despite high growth rates, in part due to the benefits of cleaner technologies. In 2002, motor vehicles and other mobile sources were determined to emit 76 percent of the harmful pollutants that degrade the air quality of the San Diego region, and industrial sources emitted 14 percent. As of 2013, SDAB's air quality is the best it has been since the mid-1950s, when air pollutant measuring began. Even so, pollutants from mobile sources still make up approximately 75 percent of the total pollutant emissions within the SDAB (SDAPCD, 2013a).

Significant progress has been realized in the region's air quality since the early 1970s when SANDAG and SDAPCD began working together to reduce regional emissions. SANDAG is responsible for developing a transportation control measures (TCM) plan to help achieve air quality objectives for the region, which is developed with input from the City of San Diego. The SDAPCD adopts the TCM plan as part of the RAQS, which is updated on a triennial basis and outlines measures for achieving state and national air quality standards. SDAPCD is also responsible for stationary source tactics to reduce air pollution resulting from industry.

The California Air Resources Board (CARB) and SDAPCD collect ambient air quality data locally through a network of air monitoring stations. These data are summarized annually and are

published in CARB's California Air Quality Data Summaries. According to the APCD 2015 Monitoring Network Assessment, a possible gap in air pollution monitoring network in the Hidden Valley/Rainbow/Pala, Fallbrook/Bonsall, and Pauma Valley/Valley Center areas, which is where the project site is located. The 2015 network assessment recommends that monitoring data for this area be derived from the South Coast Air Quality Management District's (SCAQMD's) Temecula Valley and Elsinore Valley monitoring stations (SDAPCD, 2015a).

Air quality monitoring data from the Temecula Valley monitoring station is shown in **Table 3.3-1**, which identifies the most recent available data for national and state ambient air quality standards for the relevant air pollutants between 2014 and 2016.

While the data gathered at these monitoring stations may not necessarily reflect the unique air quality environment of all areas of the County, nor the proximity of site-specific stationary and street sources, they do present the nearest available benchmark and provide the reader with a reference point as to the pollutants of greatest concern in the region.

Both CARB and the U.S. Environmental Protection Agency (USEPA) use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment. In summary, the SDAB is currently designated non-attainment for the ozone (state and national), PM_{10} (state), and $PM_{2.5}$ (state) standards (CARB, 2016b; USEPA, 2015). The current attainment status for the SDAB is provided in **Table 3.3-2**.

Emissions of NO_X and ROG in the SDAB have been following statewide trends for each pollutant since 2000. These trends are largely due to motor vehicle controls and reductions in evaporative emissions. Mobile sources (both on-road and other) are by far the largest contributors to NO_X, and ROG in the SDAB. Although the maximum one-hour concentrations occasionally exceeded the ambient air quality standards in the 1980s, ambient concentrations are now well below the levels of both the state and national standards and the SDAB is considered in attainment (SDAPCD, 2013a).

The SDAB was reclassified as an attainment area for CO in 2004 and currently maintains its attainment status (SDAPCD, 2013a). As of 2011, the national CO standard had been attained statewide. The majority of the PM_{10} emissions are from area-wide sources (CARB, 2013a). The concentration of PM_{10} and $PM_{2.5}$ recorded at the El Cajon Station did not exceed national or state 24-hour standard between 2014 and 2016. SDAB has been in attainment for SO_2 for several years and concentrations of SO_2 are not reported at any stations within the SDAB (SDAPCD, 2013a). The low level of SO_2 in the basin could be attributed to use of low-sulfur fuels in the region's electrical generators, a primary source of this pollutant in other areas of the country (SDAPCD, 2007).

TABLE 3.3-1
AIR QUALITY DATA SUMMARY FOR PROJECT AREA

Pollutant	Standard	Monitoring Data by Year 2014	2015	2016
Ozone – Temecula Valley[1] Monitoring Station				
Highest 1 Hour Average (ppm)		0.119	0.100	0.092
Days over State Standard	0.09 ppm	1	1	0
Highest 8 Hour Average (ppm)		0.100	0.087	0.081
Days over National Standard	0.070 ppm	10	20	19
Days over State Standard	0.070 ppm	14	23	20
Nitrogen Dioxide – Elsinore Valley[2] Monitoring Station				
Highest 1 Hour Average (ppb)		45.3	47.2	51.3
Days over National Standard	0.100 ppm	--	--	--
Days over State Standard	0.18 ppm	--	--	--
Annual Average (ppb)		8.2	8.7	
Days over National Standard	0.053 ppm	--	--	8.1
Days over State Standard	0.030 ppm	--	--	--
Particulate Matter (PM_{10}) – Elsinore Valley[2] Monitoring Station				
Highest 24 Hour Average ($\mu g/m_3$)		86	90	99
Days over National Standard (measured)	150 μg/m3	0	0	0
Days over State Standard (measured)	50 μg/m3	10	5	4
Annual Average ($\mu g/m_3$)[b]	20 μg/m3	25	18.7	21.4
Particulate Matter ($PM_{2.5}$)[3]				
Highest 24 Hour Average ($\mu g/m_3$)		--	--	--
Days over National Standard (measured)	35 μg/m3	--	--	--
Annual Average ($\mu g/m^3$)	12 μg/m3	--	--	--
Carbon Monoxide - Elsinore Valley[2] Monitoring Station				
Highest 8 Hour Average (ppm)		1.4	0.6	0.6
Days over National Standard	9.0 ppm	--	--	--
Days over State Standard	9.0 ppm	--	--	--
Sulfur Dioxide[3]				
Highest 24 Hour Average (ppm)		--	--	--
Days of National Standard	0.14 ppm	--	--	--
Days over State Standard	0.04 ppm	--	--	--

NOTES:
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
* = Insufficient data available to determine the value.
-- = Not monitored
1 Ozone reported at SCAQMD Temecula Valley monitoring station.
2 Nitrogen Dioxide, PM10, and Carbon Monoxide reported at SCAQMD Elsinore Valley monitoring station.
3 Pollutant not monitored at either station.

SOURCE: SCAQMD 2017.

TABLE 3.3-2
SAN DIEGO AIR BASIN ATTAINMENT STATUS

	Attainment Status	
Pollutant	**California Standards**	**Federal Standards**
Ozone – one hour	Non-attainment	No Federal Standard
Ozone – eight hour	Non-attainment	Non-attainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Attainment
PM_{10}	Non-attainment	Unclassified/Attainment
$PM_{2.5}$	Non-attainment	Unclassified/Attainment
Lead	Unclassified/Attainment	Unclassified/Attainment

SOURCE: CARB, 2016b; USEPA, 2015.

Sensitive Receptors and Locations

Sensitive receptors are individuals who are considered more sensitive to air pollutants than others. The reasons for greater than average sensitivity may include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

Currently, sensitive uses located in the project site vicinity include single-family multi-family residential uses to the north, west, and south. Specifically, the nearest residential developments are the single-family residential buildings located adjacent to the project site boundary to the north, approximately 300 feet north of the proposed disturbed area. The nearest school to the project site is Sullivan Middle School, which is located approximately 2 miles southeast of the project site boundary.

3.3.2 Regulatory Setting

Federal and State Ambient Air Quality Standards

Regulation of air pollution is achieved through both federal and state ambient air quality standards and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has identified criteria pollutants and has established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone (O_3), carbon monoxide (CO),

nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). These pollutants are called "criteria" air pollutants, as air quality standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, USEPA sets "primary" and "secondary" maximum ambient concentrations for each of the criteria pollutants. Primary standards are set to protect human health, particularly sensitive receptors, such as, children, the elderly, and individuals suffering from chronic lung conditions, such as, asthma and emphysema. Secondary standards are set to protect the natural environment and prevent damage to animals, crops, vegetation, and buildings.

NAAQS establish the level for an air pollutant above which detrimental effects to public health or welfare may result. NAAQS are defined as the maximum acceptable concentrations that, depending on the pollutant, may not be equaled or exceeded more than once per year or in some cases as a percentile of observations. California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (i.e., California Ambient Air Quality Standards [CAAQS]) and has adopted state standards for some pollutants for which there is no corresponding national standard, such as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Both the national and State ambient air quality standards for pollutants along with their associated health effects and sources are presented in **Table 3.3-3.**

TABLE 3.3-3
AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	No National Standard	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when ROG and NO_X react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.07 ppm	0.070 ppm		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Arithmetic Mean	0.030 ppm	0.053 ppm		
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	0.075 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	No State Standard	0.50 ppm (secondary)		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Arithmetic Mean	No State Standard	0.03 ppm		

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Respirable Particulate Matter (PM_{10})	24 hours	50 µg/m3	150 µg/m3	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	20 µg/m3	No National Standard		
Fine Particulate Matter ($PM_{2.5}$)	24 hours	No State Standard	35 µg/m3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
	Annual Arithmetic Mean	12 µg/m3	12.0 µg/m3		
Lead (Pb)	30 Day Average	1.5 µg/m3	No National Standard	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases).	*Present source:* lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	No State Standard	1.5 µg/m3		
	Rolling 3-Month Average	No State Standard	0.15 µg/m3		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal power plants, petroleum production and refining
Sulfates (SO_4)	24 hour	25 µg/m3	No National Standard	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, and discourages tourism.	See $PM_{2.5}$.

NOTE: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.

SOURCE: CARB, 2016a.

Criteria Air Pollutants

CARB and USEPA currently focus on criteria air pollutants, as they are the most prevalent air pollutants known to be injurious to human health, and extensive health-effects criteria documents are available about their effects on human health and welfare. A general description of the criteria pollutants is provided below.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem due to days with longer hours of sunlight. Ozone is not emitted directly into the air, but is formed, in the presence of sunlight, through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROGs) or volatile organic compounds (VOCs), and oxides of nitrogen (NO_X). While both ROGs and VOCs refer to compounds of carbon, the term ROG is used by CARB, based on a list of carbon compounds that exempts nonreactive carbon compounds, as determined by CARB. The term VOC is used by USEPA, based on USEPA's separate list of exempted compounds, identified as having negligible photochemical reactivity. For the purposes of this study, the term ROG is used.

The time period required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources. Once ozone is formed, it remains in the atmosphere for one or two days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth (rainout), or absorption by water molecules in clouds that later fall to earth with rain (washout).

As of 2010, on-road motor vehicle emissions account for approximately 45 percent of smog (ROG + NO_X) in the San Diego region. NO_X and ROG emissions have been decreasing overall since 2000, mostly due to decreased emissions from motor vehicles, brought about by stricter motor vehicle emission standards. Over approximately the past 35 years, stationary and area-wide source emissions of ROG have remained mostly unchanged due to stricter standards offsetting emissions from industry and population growth (CARB, 2013).

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

CO, a colorless and odorless gas, is a relatively non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Improvements from the transportation sector, primarily resulting from advances in technology such as emissions control systems, have resulted in major reductions in CO emissions in the SDAB, following the statewide trend, of declining from approximately 3,338 tons per day in

1975 to approximately 953 tons per day in 2005 and an estimated 558 tons per day in 2020 (CARB, 2009a).

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X, which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Sulfur Dioxide

SO_2 is a colorless, extremely irritating gas or liquid that enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as sulfur oxides (SO_X).

Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. This compound also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Particular Matter

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Particulate matter can also damage materials and reduce visibility. One common source of $PM_{2.5}$ is diesel exhaust emissions.

PM_{10} consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ are also emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. $PM_{2.5}$ can also be formed through secondary processes, such as, airborne reactions with certain pollutant precursors, including ROGs, ammonia, NO_X, and SO_X.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks; and motorcycles.

Emissions of lead have dropped substantially over approximately the past 40 years. The reduction before 1990 is largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial lead emission reductions have also been achieved due to enhanced controls in the metals processing industry. In the SDAB, atmospheric lead is generated almost entirely by the combustion of leaded gasoline. As lead has been well below regulatory thresholds for decades and the project is not a source of lead, lead is not discussed further in this analysis.

Non-Criteria Pollutants

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs), or in federal terminology, hazardous air pollutants are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to *The California Almanac of Emissions and Air Quality* (CARB, 2009a), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM or DPM), which is discussed below.

Diesel Particulate Matter

Diesel particulate matter (DPM) differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Unlike the other TACs, no ambient monitoring data are available for DPM as no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a particulate matter exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of DPM. In addition to DPM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1, 3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways and rail lines with diesel locomotive operations. The cancer risk from DPM as determined by CARB declined from 900 persons in one million in 1990, to 540 persons in one million in 2000 (CARB, 2009a). This calculated cancer risk value from ambient air exposure can be compared against the lifetime probability of being diagnosed with cancer in the United States, from all causes, which is approximately 40 percent, or greater than 400,000 in one million, according to the National Cancer Institute (National Cancer Institute, 2014).

Odorous Emissions

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Offensive odors are unpleasant and can lead to public distress generating citizen complaints to local governments. Although unpleasant, offensive odors rarely cause physical harm. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors. Generally, increasing the distance between the receptor and the odor source will mitigate odor impacts. However, because offensive odors rarely cause any physical harm and no requirements for their control are included in state or national air quality regulations, the San Diego APCD has no rules or standards related to odor emissions, other than its nuisance rule (Rule 51).

Federal Regulations

The principal air quality regulatory mechanism at the federal level is the CAA and in particular, the 1990 Amendments to the CAA and the NAAQS that it establishes. NAAQS identify the maximum ambient (background) concentration levels of criteria pollutants that are considered to be safe, with an adequate margin of safety, to protect public health and welfare. As discussed previously, the criteria pollutants include ozone, CO, NO_2 (which is a form of NO_X), SO_2 (which is a form of SO_X), PM_{10}, $PM_{2.5}$, and lead.

The CAA also requires each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The CAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. USEPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals.

USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the Federal government, such as aircraft, locomotives, and interstate trucking. USEPA's primary role at the state level is to oversee the state air quality programs. USEPA sets federal vehicle and stationary source emissions standards and provides research and guidance in air pollution programs.

State Regulations

California Air Resources Board (CARB)

The California Clean Air Act, signed into law in 1988, requires all areas of the State to achieve and maintain the CAAQS by the earliest practical date. CARB, a department of the California Environmental Protection Agency (CalEPA), oversees air quality planning and control throughout California by administering the SIP. CARB's primary responsibility lies in ensuring implementation of the California Clean Air Act, responding to the federal CAA requirements, and regulating emissions from motor vehicles sold in California. CARB also sets fuel specifications to further reduce vehicular emissions.

CARB is also responsible for regulations pertaining to TACs. The Air Toxics "Hot Spots" Information and Assessment Act was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. Assembly Bill (AB) 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release.

CARB On-Road and Off-Road Vehicle Rules

CARB adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling to reduce public exposure to DPM and other TACs (Title 13 California Code of Regulations [CCR], Section 2485). ATCM applies to diesel-fueled commercial vehicles with gross vehicle weight ratings (GVWR) greater than 10,000 pounds that are licensed to operate on highways, and all diesel-fueled trucks and buses with a GVWR greater than 14,000 pounds. This measure does not allow diesel-fueled vehicles to idle for more than 5 minutes at any given location.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulation adopted by CARB aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models (13 CCR, Section 2449). Each fleet must demonstrate compliance by (1) calculating and maintaining fleet average emissions targets, which encourages the retirement of older equipment and rewards the introduction of newer cleaner units into the fleet, or (2) meeting the best available control technology (BACT) requirements by turning over or installing verified diesel emission control strategies (VDECS) on a certain percentage of its total fleet horsepower. The compliance schedule requires that BACT turnovers or retrofits (VDECS installation) be fully implemented by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

Regional

San Diego Air Pollution Control District

SDAPCD is the agency responsible for protecting the public health and welfare through the administration of federal and state air quality laws and policies. Included in SDAPCD's tasks are the monitoring of air pollution, the preparation of San Diego County's portion of the SIP, and the

promulgation of rules and regulations. The SIP includes strategies and tactics to be used to attain and maintain acceptable air quality in the County; this list of strategies is called the San Diego Regional Air Quality Strategy (RAQS) (SDAPCD, 2009). The rules and regulations include procedures and requirements to control the emission of pollutants and prevent significant adverse impacts.

The following SDAPCD rules and regulations apply to new construction:

- Regulation IV: Prohibitions; Rule 51: Nuisance. Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property.
- Regulation IV: Prohibitions; Rule 55: Fugitive Dust. Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site.
- Regulation IV: Prohibitions; Rule 67.0: Architectural Coatings. Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.
- Regulation XII: Prohibitions, Rule 1200: Toxic Air Contaminants –Requires stationary sources to be equipment with application Toxic BACT if the maximum incremental Cancer Risk is found to be greater than 1 in one million. With implementation of applicable BACT's, SDAPCD allows an incremental Cancer Risk less than 10 in one million. According to SDAPCD's *New Source Review Requirements for Best Available Control Technology Guidance Document (SDAPCD 2011)*, the following applicable BACT's would apply to the project in respect to off-road construction equipment:
  - California use Clean Diesel fuel and Turbocharger, Low Temperature Aftercooler, and Retardation of Fuel Injection Timing 4 Degrees from manufacturer's specification, EPA or ARB certified engine and PCV filter.

The RAQS contains six transportation control measures that are consistent with program commitments made in the 2007 Regional Transportation Plan (RTP) and the 2006 Regional Transportation Improvement Program (RTIP) adopted and implemented by San Diego Association of Governments (SANDAG). The six RAQS transportation control measures relate to: (1) Transit Improvements; (2) Vanpools; (3) High-Occupancy Vehicle (HOV) Lanes; (4) Park-and-Ride Facilities; (5) Bicycle Facilities; and (6) Traffic Signal Improvements. SDAPCD's Indirect Source Program, adopted by the District Board in December 1997, consists of ongoing outreach and assistance to local governments, land developers, and neighborhood groups to reduce vehicle trips and associated emissions through voluntary land use and street design improvements (i.e., "smart growth") (SDAPCD, 2009).

SDAPCD provides ongoing technical assistance to SANDAG on programs to encourage smart growth. SDAPCD has also conducted public workshops and other forms of public outreach focused on improving the conditions for pedestrians, bicyclists, and transit.

Local

Fallbrook Community Plan

While the Bonsall Unified School District (BUSD) is not required to comply with San Diego County General Plan and zoning requirements, the following discussion is provided to document the intent of BUSD to demonstrate consistency with San Diego County General Plan land use policies and zoning requirements. The project site is located within the Fallbrook Community Plan area in unincorporated San Diego County. The following Fallbrook Community Plan goals and policies are applicable to the project.

Goal COS 1.5: Land use plans and policies that protect and improve the air quality of the Fallbrook community.

Policy COS 1.5.1: Support programs that maintain and improve air quality, such as tree planting and development of light agriculture.

County of San Diego General Plan

The project site is located within the Fallbrook Community Plan area in unincorporated San Diego County. The following San Diego County General Plan goals and policies are applicable to the project.

Goal COS-4: Water Management. A balanced and regionally integrated water management approach to achieve the long-term viability of the County's water quality and supply.

Policy COS-4.1: Water Conservation. Require development to reduce the waste of potable water through use of efficient technologies and conservation efforts that minimize the County's dependence on imported water and conserve groundwater resources.

Policy COS-4.2: Drought-Efficient Landscaping. Require efficient irrigation systems and in new development encourage the use of native plant species and non-invasive drought tolerant/low water use plants in landscaping.

Goal COS-14: Sustainable Land Development. Land use development techniques and patterns that reduce emissions of criteria pollutants and GHGs through minimized transportation and energy demands, while protecting public health and contributing to a more sustainable environment.

Policy COS-14.1: Land Use Development Form. Require that development be located and designed to reduce vehicular trips (and associated air pollution) by utilizing compact regional and community-level development patterns while maintaining community character.

Policy COS-14.3: Sustainable Development. Require design of residential subdivisions and nonresidential development through "green" and sustainable land development practices to conserve energy, water, open space, and natural resources.

Policy COS-14.5: Building Siting and Orientation in Subdivisions. Require that buildings be located and oriented in new subdivisions and multi-structure non-residential projects to maximize passive solar heating during cool seasons, minimize heat gains during hot periods, enhance natural ventilation, and promote the effective use of daylight.

Policy COS-14.7: Alternative Energy Sources for Development Projects. Encourage development projects that use energy recovery, photovoltaic, and wind energy.

Policy COS-14.8: Minimize Air Pollution. Minimize land use conflicts that expose people to significant amounts of air pollutants.

Policy COS-14.10: Low-Emission Construction Vehicles and Equipment. Require County contractors and encourage other developers to use low-emission construction vehicles and equipment to improve air quality and reduce GHG emissions.

Policy COS-14.12: Heat Island Effect. Require that development be located and designed to minimize the "heat island" effect as appropriate to the location and density of development, incorporating such elements as cool roofs, cool pavements, and strategically placed shade trees.

Goal COS-15: Sustainable Architecture and Buildings. Building design and construction techniques that reduce emissions of criteria pollutants and GHGs, while protecting public health and contributing to a more sustainable environment.

Policy COS-15.1: Design and Construction of New Buildings. Require that new buildings be designed and constructed in accordance with "green building" programs that incorporate techniques and materials that maximize energy efficiency, incorporate the use of sustainable resources and recycled materials, and reduce emissions of GHGs and toxic air contaminants.

Policy COS-15.4: Title 24 Energy Standards. Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards.

Policy COS-15.6: Design and Construction Methods. Require development design and construction methods to minimize impacts to air quality.

Goal COS-17: Sustainable Solid Waste Management. Perform solid waste management in a manner that protects natural resources from pollutants while providing sufficient, long term capacity through vigorous reduction, reuse, recycling, and composting programs.

Policy COS-17.1: Reduction of Solid Waste Materials. Reduce greenhouse gas emissions and future land fill capacity needs through reduction, reuse, or recycling of all types of solid waste that is generated. Divert solid waste from landfills in compliance with State law.

Policy COS-17.6: Recycling Containers. Require that all new land development projects include space for recycling containers.

Policy COS-17.7: Material Recovery Program. Improve the County's rate of recycling by expanding solid waste recycling programs for residential and non-residential uses.

Goal COS-19: Sustainable Water Supply. Conservation of limited water supply supporting all uses including urban, rural, commercial, industrial, and agricultural uses.

Policy COS-19-1: Sustainable Development Practices. Require land development, building design, landscaping, and operational practices that minimize water consumption.

3.3.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to Air Quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan (see Impact 3.3-1, below);
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation (see Impact 3.3-2, below);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) (see Impact 3.3-3, below);
- Expose sensitive receptors to substantial pollutant concentrations (see Impact 3.3-4, below);
- Create objectionable odors affecting a substantial number of people (see Impact 3.3-5, below).

As stated in Appendix G of the *CEQA Guidelines*, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. SDAPCD does not have quantitative thresholds for determining significance of construction or operational impacts. However, the County of San Diego provides guidance and thresholds for air quality analysis in their *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements Air Quality* (Guidelines) (County, 2007). As such, the significance thresholds and analysis methodologies in this County guidance are used in evaluating project impacts. Significance determination is summarized below.

Conformance to Regional Air Quality Strategy

The SDAPCD RAQS is the regional air quality plan that is applicable to the County of San Diego, including the project area. The RAQS contains rules and regulations that are implemented by SDAPCD to help the region meet the clean air standards required by federal and state law. The RAQS relies on projected growth in the County as well as mobile, area, and other sources of emissions, as obtained from CARB and SANDAG to project future emissions within the County. Based on these emissions, reduction strategies are determined to reduce emissions in order to achieve or maintain attainment with State and Federal standards. CARB mobile source emissions projections and SANDAG growth projections are based on information provided by the County General Plan. Therefore, projects that propose development consistent with the applicable general plan would be consistent with the RAQS and the SIP. If the project's growth exceeds the projections anticipated in the general plan, then the project would conflict with the RAQS and the SIP.

Construction Impacts

The County Guidelines establish the levels of significance for construction activities. Based on the Guidelines, the proposed project would be considered significant if project emissions exceed the following screening level thresholds (SLTs) for criteria pollutants:

- 75 lbs/day VOCs,
- 250 lbs/day NO_X,
- 550 lbs/day CO,
- 250 lbs/day SO_X,
- 55 lbs/day $PM_{2.5}$, and/or
- 100 lbs/day PM_{10}.

Operational Impacts

The County Guidelines establish the levels of significance for operational activities. Based on the Guidelines the project would be considered significant if project emissions exceed the following SLTs for criteria pollutants:

- 75 lbs/day VOCs,
- 250 lbs/day NO_X,
- 550 lbs/day CO,
- 250 lbs/day SO_X,
- 55 lbs/day $PM_{2.5}$, and/or
- 100 lbs/day PM_{10}.

CO Hotspot

The County Guidelines state that areas where CO concentrations exceed the NAAQS and/or CAAQS have been found to occur at signalized intersections operating at or below a level of service (LOS) E, and where peak-hour vehicle trips exceed 3,000 trips. Therefore, as a screening level analysis, a project that would cause an intersection to be degraded from LOS D to LOS E or LOS E to LOS F and would have peak-hour trips greater than 3,000 trips would be required to conduct a further CO hotspot analysis.

Health Risk

The latest 2015 guidance from the Office of Environmental Health Hazard Assessment (OEHHA, 2015) was used to evaluate if future project operations would expose residents and workers to significance health risk. Health risks associated with TAC exposure fall into three categories: acute, chronic, and carcinogenic. Acute and chronic health risks consist of non-cancer health effects. Acute health risks are associated with exposures ranging from one to eight hours. Chronic health risks are associated with exposures of one year or more. Carcinogenic health risks are associated with long-term exposures ranging from 25 to 70 years.

According to SDAPCD's Regulation XII: Prohibitions, Rule 1200: Air Contaminants, an incremental cancer risk greater than 1 in one million without implementation of BACT, or greater than 10 in one million with the application of BACTs as a significant impact (SDAPCD, 2015b). Also, SDAPCD considers a health hazard index greater than one as significant. The health risk analysis described below uses these thresholds to determine significance.

Odors

The Guidelines state that a project that is subject to SDAPCD standards would have a significant impact with respect to odors if it generates objectionable odors or places sensitive receptors next to existing objectionable odors. Odor issues are very subjective by the nature of odors themselves and their measurements are difficult to quantify. As a result, this impact is discussed qualitatively and the analysis focuses on the existing and potential surrounding uses and location of sensitive receptors.

SDAPCD Rule 51 (Public Nuisance) and California Health & Safety Code, Division 26, Part 4, Chapter 3, Section 41700 prohibit the emission of any material which causes nuisance to a considerable number of persons or endangers the comfort, health or safety of the public. Projects required to obtain permits from SDAPCD, typically industrial and some commercial projects, are evaluated by SDAPCD staff for potential odor nuisance and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

3.3.4 Methodology

Criteria Pollutants

This technical analysis focuses on the nature and magnitude of the change in the air quality environment due to implementation of the project. Air pollutant emissions associated with the proposed project would result from operations of the future commercial and recreational developments at the project site and from traffic volumes generated by these new uses. Construction activities would also generate air pollutant emissions at the project site and on roadways resulting from construction-related traffic. The net increase in emissions generated by these activities and other secondary sources have been estimated and compared to the applicable SLTs recommended by the County.

Construction Impacts

Short-term construction-generated emissions of criteria air pollutants and ozone precursors associated with the proposed project were modeled using the California Emissions Estimator Model (CalEEMod), Version 2016.3.1, as recommended by SDAPCD. CalEEMod was used to determine whether short-term construction-related emissions of criteria air pollutants associated with the proposed project would exceed the County's applicable SLTs and whether mitigation would be required. Modeling was based on project-specific data, where available. Where project-specific information was not available, reasonable assumptions based on other similar projects and default model settings were used to estimate criteria air pollutant and ozone precursor emissions. Modeling input and output files are provided in **Appendix C** of this Draft EIR.

Construction of the proposed project would occur over two phases. Phase 1 is anticipated to begin in late 2019 and take approximately 15 months to complete. Phase 2 is anticipated to begin in early 2023 and take approximately 13 months to complete. Construction of the proposed project would include various construction activities, including grading, building construction, paving, and architectural coating. Heavy-duty equipment used during construction would include graders, backhoes, industrial saws, rubber-tired dozers, forklifts, cranes, pavers, rollers and air compressors. Construction emissions are considered short-term and temporary, but have the potential to represent a significant impact with respect to air quality depending on the intensity and duration of equipment usage and construction activity.

Particulate matter (i.e., PM_{10} and $PM_{2.5}$) are among the pollutants of greatest localized concern with respect to construction activities. PM emissions from construction activities can lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. PM emissions can result from a variety of construction activities, including excavation, grading, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction emissions of PM can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, local soil conditions, weather conditions, and the amount of earth disturbance.

Emissions of ozone precursors ROG and NOx are primarily generated from mobile sources and vary as a function of vehicle trips per day associated with debris hauling, delivery of construction materials, vendor trips, and worker commute trips, and the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation. all onsite construction equipment would be Tier 3 or have emissions levels equivalent to or more stringent than Tier 3 rated engines. Therefore, the model accounts for Tier 3 engines for all off-road construction equipment. A large portion of construction-related ROG emissions also result from the application of architectural coatings and vary depending on the amount of coatings applied each day. Pursuant to SDAPCD Rule 67 regulating VOC content of architectural coating materials, construction architectural coatings have been limited to 150 grams per liter of VOC content.

Where project-specific information was not available, CalEEMod defaults were used. Grading of the entire disturbed area (26.1 acres) would take approximately five months and occur at the start of Phase 1. Onsite soils are anticipated to balance and no import or export of soil would be required. Construction of Phase 1 buildings, landscaping, parking, and roadways would take approximately 10 months to complete with an anticipated completion date in December 2020. Phase 2 construction is anticipated to begin early 2023 with anticipated completion in January 2024. It is mandatory for all construction projects in the SDAB to comply with SDAPCD Rule 55 for controlling fugitive dust. Incorporating Rule 55 into the proposed project would reduce regional PM_{10} and $PM_{2.5}$ emissions from construction activities. Specific Rule 55 control requirements include dust control measures for active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site. Compliance with Rule 55 was accounted for in the construction emissions modeling. Site watering up to three times per day would reduce the particulate matter from becoming airborne, while washing of transport vehicle tires and undercarriages would reduce re-entrainment of construction dust onto the local roadway network.

Operational Impacts

Long-term (i.e., operational) emissions of criteria air pollutants and precursors associated with the proposed project, including mobile- and area-source emissions, were also quantified using the model. Model defaults were adjusted to reflect project-specific data, where available, including the size, type and characteristics of the proposed land use. Area-source emissions, which are widely distributed and made of many small emissions sources (e.g., building heating and cooling units, landscaping equipment, consumer products, painting operations, etc.), were modeled according to the size and type of land use proposed. Mass mobile-source emissions were modeled based on the daily vehicle trips that would result from the proposed project as estimated in the project traffic study prepared by Kunzman Associates and included as **Appendix C** of this Draft EIR.

The most recent CalEEMod version (2016.3.1) used in this analysis assumes Title 24 (2013) requirements for energy use and does not account for 2016 requirements. Title 24 (2016) requirements are estimated to be more restrictive than the prior Title 24 (2013) requirements for electricity, natural gas, and lighting. Therefore, a reduction in lighting and Title 24 electricity and natural gas use has been applied to account for the more restrictive 2016 requirements. Pursuant to CALGreen (2016) requirements as well as County waste diversion rates, the model accounts for a 20 percent reduction in indoor water use and 50 percent reduction in solid waste generation. The County's diversion rate in 2015 was 62 percent; therefore, a 50 percent rate for modeling purposes provides a generally conservative estimate (County of San Diego 2016). Project design features include the installation of low flow bathroom and kitchen fixtures and water-efficient irrigation systems and have been accounted for in the model.

CO Hotspots

For the purposes of this analysis, the change in LOS of project intersections combined with the peak hourly vehicle volumes through studied intersections was reviewed to evaluate the potential impacts associated with CO hotspots. Intersections where the project causes the intersection to operate at a LOS of E or worse, and exceeds 3,000 vehicles in the peak hour would be required to conduct dispersion modeling to determine the potential impact from the impacted intersections.

Toxic Air Contaminants

TAC generators are associated with diesel fueled vehicles and specific types of facilities such as dry cleaners, gas stations, distribution centers, and ports. Because the proposed project is a high school that would not include one of the TAC emitter facilities or an emergency backup generator, it is not anticipated that off-site receptors would be impacted by the project's onsite operations. Additionally, the project would not introduce any residents or sensitive receptors on the project site that could be impacted by TAC generating sources, such as high-volume roadways or freeways. Therefore, this analysis discusses impacts from TACs on a qualitative basis.

3.3.5 Impact Analysis

Air Quality Plan

Impact 3.3-1: The project would not conflict with or obstruct implementation of the applicable air quality plan.

The project area is identified as Public/Semi-Public Facilities in the San Diego County General Plan. The project is intended to accommodate anticipated growth in the BUSD high student population and would not result in population growth within the County. While the project is not expected to result in population growth in the area, it would result in an increase in employment of high school staff in the County. However, in its 2050 Regional Growth Forecast, SANDAG identified employment growth in unincorporated areas of the County would increase from 137,264 in 2008 to 192,077 in 2050, an increase of 54,813 jobs (SANDAG 2013). The project is expected to provide a maximum of 60 jobs (teachers, aides, administrators, and other school personnel) final at build out, which is well within the anticipated increase of 54,813 jobs. As such, this project-related increase in employment is accounted for in the SANDAG growth assumptions for the County. The project would be consistent with the designated land use identified in the San Diego County General Plan and therefore would not exceed the growth projections anticipated in the General Plan. Therefore, the project would not conflict with or obstruct implementation of the RAQS or the SIP.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Air Quality Standards/Violations

Impact 3.3-2: The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Construction Emissions

The proposed project would involve the construction of a new high school in 2 phases. Phase 1 would take approximately 15 months to complete and Phase 2 would take approximately 13 months to complete. Construction activities associated with the proposed project would generate pollutant emissions from the following construction activities: grading; construction workers traveling to and from project site, delivery of construction supplies to the project site; fuel combustion by onsite construction equipment; building construction; application of architectural coatings; and paving. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously at the time. It was assumed for the project's construction schedule that construction activities may overlap, such that paving and building construction could occur

simultaneously on a peak-day of construction activity and architectural coating and building construction could occur simultaneously on a peak-day of construction activity. **Table 3.3-4** summarizes the modeled peak daily emissions of criteria air pollutants and ozone precursors associated with the proposed project's worst-case construction scenario.

TABLE 3.3-4
PROPOSED PROJECT CONSTRUCTION EMISSIONS

	Estimated Maximum Daily Emissions (lbs/day)					
Construction Activities	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Phase 1						
Grading	1.61	30.04	37.31	0.06	4.85	2.75
Building Construction	2.08	25.84	27.69	0.07	3.67	1.70
Paving	1.08	11.34	17.72	0.02	0.73	0.64
Architectural Coating	43.79	1.50	3.25	0.01	0.51	0.21
Building Construction + Paving	3.17	37.18	45.41	0.10	4.40	2.34
Building Construction + Architectural Coating	45.88	27.34	30.94	0.08	4.18	1.91
Maximum Daily Emissions	**45.88**	**37.18**	**45.41**	**0.10**	**4.85**	**2.75**
SDAPCD Thresholds	*75*	*250*	*550*	*250*	*100*	*55*
Significant Impact?	No	No	No	No	No	No
Phase 2						
Building Construction	2.89	29.42	33.13	0.11	6.17	2.36
Paving	0.79	11.33	17.64	0.02	0.73	0.64
Architectural Coating	54.22	1.56	4.03	0.01	0.89	0.31
Building Construction + Paving	3.69	40.74	50.77	0.14	6.90	3.00
Building Construction + Architectural Coating	56.91	30.68	36.17	0.12	7.06	2.67
Maximum Daily Emissions	**56.91**	**40.74**	**50.77**	**0.14**	**7.06**	**3.00**
SDAPCD Thresholds	*75*	*250*	*550*	*250*	*100*	*55*
Significant Impact?	No	No	No	No	No	No

SOURCE: Appendix C; San Diego County Guidelines for Determining Significance, 2007

As shown in Table 3.3-4, the maximum daily construction emissions generated by the proposed project's worst-case construction scenario would not exceed County's SLTs for any criteria pollutants during any of the construction phases. Therefore, project construction would not result in or substantially contribute to emissions concentrations that would exceed the NAAQS and CAAQS for these criteria pollutants.

Operational Emissions

Implementation of the proposed project would result in long-term operational emissions of criteria air pollutants and ozone precursors associated with area sources, such as landscaping,

applications of architectural coatings, and consumer products; energy consumption, including electricity and natural gas consumption; and operational mobile emissions from vehicle trips made by teachers, administrative staff, students, and parents. According to the traffic study prepared for the project, development of the high school at the project site would result in approximately 650 daily vehicle trips per day after completion of Phase 1 and a total of 1,950 daily vehicle trips at full project build out.

Phase 1 is anticipated to be operational while Phase 2 is under construction. Total emissions during Phase 1 operations with Phase 2 construction overlap and total project buildout emissions are summarized in **Table 3.3-5**.

TABLE 3.3-5
PROPOSED PROJECT OPERATIONAL EMISSIONS

	Estimated Emissions (lbs/day)					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Phase 1 Operations + Phase 2 Construction Overlap						
Area	1.59	0.00	0.05	0.00	0.00	0.00
Energy	0.01	0.07	0.06	0.00	0.01	0.01
Mobile	1.11	4.60	12.69	0.04	3.64	1.00
Total Phase 1 Operations	*2.71*	*4.67*	*12.80*	*0.04*	*3.65*	*1.01*
Phase 2 Construction	56.91	40.74	50.77	0.14	7.06	3.00
Total Phase 1 Operations & Phase 2 Construction Emissions	**59.61**	**45.41**	**63.57**	**0.18**	**10.71**	**4.01**
SDAPCD Thresholds	*75*	*250*	*550*	*250*	*100*	*55*
Significant Impact?	No	No	No	No	No	No
Buildout Operations						
Area	5.05	0.00	0.16	0.00	0.00	0.00
Energy	0.03	0.23	0.19	0.00	0.02	0.02
Mobile	2.60	9.98	29.60	0.11	10.91	2.97
Total Buildout Emissions	**7.68**	**10.21**	**29.95**	**0.11**	**10.93**	**2.99**
SDAPCD Thresholds	*75*	*250*	*550*	*250*	*100*	*55*
Significant Impact?	No	No	No	No	No	No

SOURCE: Appendix C; San Diego County Guidelines for Determining Significance, 2007

As shown in Table 3.3-5, the proposed project would result in long-term operational emissions of criteria air pollutants and ozone precursors that would not exceed County's SLTs. Therefore, project operations would not result in or substantially contribute to emissions concentrations that would exceed the NAAQS and CAAQS for these criteria pollutants.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Cumulative Increase of Criteria Pollutant

Impact 3.3-3: The project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Construction Impacts

As discussed above, construction activities associated with the proposed project would not exceed any of San Diego County's criteria air pollutant emissions thresholds. Furthermore, project-related construction emissions, in combination with any other proposed or reasonably foreseeable future projects, are not anticipated to exceed the SLTs for any criteria pollutant because construction emissions from the proposed project are minimal in comparison to the thresholds, as shown in Table 3.3-5. Therefore, project construction would not result in a cumulatively considerable net increase of any criteria pollutant.

Operational Impacts

As discussed above, the proposed project would conform with the RAQS and the SIP, and therefore, is not anticipated to result in cumulatively considerable operational impacts.

As discussed, operational emissions from the proposed project would not exceed any of the County's applicable SLTs. Therefore, the proposed project would not result in a cumulatively considerable net increase in criteria pollutants.

CO emissions result from the combustion of fuels and hotspots are associated with excessive idling at area intersections. These hotspots are areas where CO concentrations would exceed the NAAQS or CAAQS for CO emissions. Presently CO hotspots are determined based on LOS and vehicle volumes at intersections. As discussed below in the detailed CO hotspot analysis for proposed project and cumulative impacts, the proposed project would not result in cumulatively considerable CO hotspots.

Based on the analysis provided herein, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the SDAB is non-attainment under applicable NAAQS or CAAQS.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Sensitive Receptors

Impact 3.3-4: The project would not expose sensitive receptors to substantial pollutant concentrations.

For the purposes of CEQA analysis in the County Guidance, the definition of a sensitive receptor includes schools (Preschool-12th Grade), hospitals, resident care facilities, day-care centers and residents. The two primary emissions of concern regarding health effects for land development projects are diesel-fired particulates and carbon monoxide. Separate discussions are provided below analyzing the potential for sensitive receptors to be exposed to CO hotspots and TACs from onsite sources during project construction and operations.

CO Hotspots

Eleven local intersections were analyzed as part of the proposed project traffic analysis. The existing plus project and full operational year (2025) peak-hour conditions were evaluated against the screening level **Table 3.3-6**.

TABLE 3.3-6
LEVEL OF SERVICE AND PEAK HOURLY TRAFFIC VOLUMES

	Existing (E) Plus Project (P)				Future (F) Plus Project (P)			
	AM		PM		AM		PM	
Level of Service								
Intersection	**E**	**E+P**	**E**	**E+P**	**F**	**F+P**	**F**	**F+P**
SR-76 & Old River Road/East Vista Way	C	C	D	D	C	C	D	D
SR-76 & North River Road	B	C	B	B	C	D	B	C
SR-76 & Olive Hill Road/Camino Del Rey	C	D	D	D	D	D	D	D
SR-76 & South Mission Road	C	C	C	C	D	D	C	D
Old River Road (W) & Camino Del Rey	C	D	C	C	E	D	D	C
Old River Road (E) & Camino Del Rey	B	B	B	B	B	B	B	B
Lilac Road & Camino Del Rey	C	C	C	C	D	**E**	D	D
SR-76 & Via Monserate	**F**	**F**	**F**	**F**	B	B	B	B
Gird Road & Knottwood Way	A	B	B	B	B	B	B	B
Gird Road & SR-76	B	D	B	C	B	C	A	B
Old Highway 395 & SR-76	C	C	D	D	B	B	C	C
Traffic Volumes								
Intersection	**E+P AM**		**E+P PM**		**F+P AM**		**F+P PM**	
Lilac Road & Camino Del Rey	1,039		921		1,252		1,136	
SR-76 & Via Monserate	2,093		1,276		2,475		2,742	
Screening Threshold	*3,000*		*3,000*		*3,000*		*3,000*	

SOURCE: Chen Ryan Associates 2017.

As shown in Table 3.3-6, with the addition of project-related traffic, the intersection at Lilac Road and Camino Del Rey would function at LOS E during the AM peak hour and the intersection. Table 3.3-6 also shows that the intersection of SR-76 and Via Monserate would function at LOS F during the AM and PM peak hours under the existing without project and existing plus project scenarios. However, peak-hour volumes for these scenarios would not exceed the threshold of 3,000 peak-hour trips. Therefore, because project-related traffic would not exceed the screening threshold, impacts would be less than significant and no mitigation is required.

TAC Exposure

Construction

Project construction would result in short-term emissions of DPM, which is a TAC. Project-related off-road heavy-duty diesel equipment would emit DPM during grading; paving; installation of utilities; materials transport and handling; building construction; and other miscellaneous activities. Diesel exhaust consists mainly of particulate matter and gases, which contain potential cancer-causing substances (County, 2007). As shown in Table 3.3-5, project construction would result in low levels of PM_{10} and $PM_{2.5}$ emissions and would therefore result in low levels of diesel particulate matter concentrations in the project area.

Furthermore, compliance with the CARB ATCM anti-idling measure, which limits idling to no more than five minutes at any location for diesel-fueled commercial vehicles, would further minimize diesel particulate matter emissions in the project area. The proposed project would be required to comply with required and applicable BACT, as required by SDAPCD Rule 1200, and the In-Use Off-Road Diesel Vehicle Regulation. Thus, sensitive receptors would not be exposed to emissions above significance thresholds.

Operation

Typical sources of acutely and chronically hazardous TACs include industrial manufacturing processes, automotive repair facilities, and dry cleaning facilities. The proposed high school would not include any of these potential sources, although minimal emissions may result from the use of consumer products. Additionally, it is not anticipated that an emergency back-up generator would be part of the project development. However, if a generator was installed, it would typically only be used during emergencies and may be turned on periodically for maintenance and inspection purposes. As such, the periodic operation of the backup generator at the project site would not expose surrounding sensitive receptors to substantial pollutant or TAC emissions.

Additionally, the proposed project is not located within the buffer distance of any major TAC-emitting facilities, including within 500 feet of any freeway or major roadway with more than 100,000 vehicles per day. The nearest highway is California SR 76, which is located approximately 1,900 feet south of the project site and the nearest freeway to the project site is Interstate 15, which is located approximately 10,600 feet east of the project site; therefore, the proposed high school would not introduce any sensitive receptors (students) to a site within 500 feet of any freeway or major roadway. Therefore, implementation of the proposed project is not anticipated to adversely affect sensitive receptors by exposure to diesel exhaust emissions.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Odors

Impact 3.3-5: The project would not create objectionable odors affecting a substantial number of people.

Construction

During project construction, exhaust from equipment and on-road haul trucks may produce discernible odors typical of most construction sites. Such odors could be a temporary source of nuisance to adjacent uses, but would not affect a substantial number of people. As odors associated with project construction would be intermittent over the 15-month Phase 1 and 13-month Phase 2 construction periods, and would vary with intensity of construction activity during any given time, the odors would not be considered a significant environmental impact.

Operations

Land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed high school use does not include any uses associated with objectionable odors. Therefore, the proposed project would not result in new sources of odor sources near existing residential receptors. Therefore, the proposed project would not expose a considerable number of persons to objectionable odors.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

3.3.6 Cumulative Impact Analysis

Air Quality Plan

The proposed project was found to be consistent with the RAQS and the SIP, would not result in CO hotspots, and would not exceed any of the County's applicable SLTs. As such, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the SDAB is non-attainment under applicable NAAQS or CAAQS.

Air Quality Standards/Violations

As discussed under the impact analysis for Threshold 3.3-3, above, the proposed project would not result in cumulatively considerable construction or operational impacts.

The context for assessing cumulative air quality impacts is the SDAB in terms of national and state criteria pollutant standards. Emissions from vehicle trips generated from existing and future

development surrounding the proposed project and the region will improve as State emissions control requirements and technologies improve over the long-term. This will result in a positive overall effect on local and regional air quality as time progresses.

Cumulative short-term, construction-related emissions from the proposed project would not contribute considerably to any potential cumulative air quality impact because short-term project emissions would be less than significant and other concurrent construction projects in the region would be required to implement standard air quality regulations and mitigation pursuant to State CEQA Requirements. Compliance would ensure that individually, all construction projects would not exceed applicable thresholds and thus, additively would not contribute to any short-term air quality standard violation.

Sensitive Receptors

The CO hotspot analysis presented in Table 3.3-6 considers future cumulative traffic conditions. The proposed project would not locate sensitive receptors (students) or result increases in cumulative traffic volumes that could expose sensitive receptors to potential CO hotspots. Therefore, the proposed project is not cumulative considerable.

Project construction would not result excessive DPM emissions, as discussed under the impact analysis for Threshold 3.3-4, during construction or operation and would therefore not be cumulatively considerable.

Odors

As discussed under the impact analysis for Threshold 3.3-5, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed high school use does not include any uses associated with objectionable odors and potential discernable odors occurring during construction activities would be temporary and not considered a significant environmental impact. Neighboring uses include agricultural use, which could potentially generate discernible odor. The proposed project would not result in new permanent sources of odors that could cumulatively increase the exposure of odors to residential uses in the project area. Project impacts related to odors would therefore not be cumulatively considerable.

3.3.7 References

California Air Resources Board (CARB), 2015. iADAM: Air Quality Data Statistics. Top 4 Measurements and Days Above Standard. Available at: http://www.arb.ca.gov/adam/topfour/topfour1.php, accessed: June 2017.

———, 2016a. Ambient Air Quality Standards, Last revised May, 4, 2016. Available at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, accessed: June 19, 2017.

———, 2016b. Area Designation Maps/State and National. Available at: www.arb.ca.gov/desig/adm/adm.htm/, accessed June 2017.

———, 2013. The California Almanac of Emissions and Air Quality – 2013 Edition, Chapter 4. Available at: http://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm, accessed June 19, 2017.

———, 2009a. The California Almanac of Emissions and Air Quality – 2009 Edition. Available at: http://www.arb.ca.gov/aqd/almanac/almanac09/almanac09.htm, accessed June 19, 2017.

———, 2008. 2008 California Toxic Inventory (Based on the Almanac 2009 – tons/year). Available at: http://www.arb.ca.gov/toxics/cti/cti.htm, accessed June 19, 2017.

———, 2004. *2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan for Ten Federal Planning Areas*. June 2017.

County of San Diego, 2016. Strategic Plan to Reduce Waste. October. Available at: http://www.sandiegocounty.gov/dpw/recycling/plan.html, accessed August 2017.

———, 2015. General Plan Land Use Designations Map. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/gpupdate/docs/GP/0-Countywide.pdf, accessed June 19, 2017.

———, 2007. *Guidelines for Determining Significance and Report Format and Content Requirements Air Quality*. 2007.

———,1978. San Diego County Zoning Ordinance. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/zoning/z2000.pdf, accessed June 19, 2017.

Kunzman Associates, Inc., 2017. *Bonsall High School Revised Traffic Impact Analysis.* August 7.

National Cancer Institute, 2014. SEER Cancer Statistics Factsheets: All Cancer Sites. National Cancer Institute. Bethesda, MD, Available at: http://seer.cancer.gov/statfacts/html/all.html., accessed June 19, 2017.

Office of Environmental Health Hazard Assessment, 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments, February. Available at: http://www.oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, accessed June 19, 2017.

San Diego Association of Governments (SANDAG), 2013. *2050 Regional Growth Forecast.* October 15, 2013.

South Coast Air Quality Management District (SCAQMD), 2017. Historical Data by Year. Available at*:* http://www.aqmd.gov/home/library/air-quality-data-studies/historical-data-by-year, accessed June 19, 2017.

San Diego County Air Pollution Control District (SDAPCD), 2013a. *Air Quality in San Diego 2013 Annual Report.* 2013.

———, 2015a. *5-Year Air Quality Monitoring Network Assessment.* July 2015

———, 2015b. *Supplemental Guidelines for Submission of Rule 1200 Health Risk Assessments (HRAs).* June 2015.

———, 2011. *New Source Review Requirements for Best Available Control Technology (BACT) Guidance Document.* June 2011.

———, 2009. *Regional Air Quality Strategy Revision*. 2009.

———, 2007. *Air Quality in San Diego County 2007 Annual Report*. 2007.

United States Environmental Protection Agency (USEPA), 2015. The Greenbook Nonattainment Areas for Criteria Pollutants. Available at: http://www.epa.gov/air/oaqps/greenbk/index.html, accessed June 2017.

WeatherCurrents.com (WC), 2017. Vista 2 NNE California (049378) Period of Record Monthly Climate Summary. Available at: http://www.wrcc.dri.edu/summary/Climsmsca.html, accessed August 2017.

3.4 Biological Resources

This section describes the existing conditions in the project site and provides an evaluation of potential impacts to biological resources associated with the proposed project. The analysis identifies the proposed project elements that may have measurable impacts on biological resources, and analyzes if such impacts can be mitigated to less-than-significant levels. The Biological Resources Assessment report supporting the analysis is included in **Appendix D**. Botanical, oak tree and sensitive species surveys are included in **Appendices E** though **Appendix J**.

3.4.1 Literature Review

The determination of biological resources present on the project site was made from a literature review of previously prepared reports, and data sources that include:

- A biological reconnaissance-level survey conducted by Hernandez Environmental Services (HES) biologists on June 9, 2016, September 22, 2017, and October 21, 2017, as documented in the Biological Resources Assessment updated in October 2017. The purpose of the survey was to characterize onsite plant communities and assess habitat quality to determine the potential for the project site (and adjacent lands) to support sensitive biological resources. HES biologists identified potential biological resource constraints within the project site, as well as habitats having the potential to support sensitive biological resources (e.g., special-status species, sensitive natural communities and riparian habitats), including waterways and associated aquatic habitats. Focused surveys for various special-status were also conducted by HES including: least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-billed cuckoo (*Coccyzus americanus*), San Diego ambrosia (*Ambrosia pumila*), burrowing owl (*Athene cunicularia*), Stephens' kangaroo rat (*Dipodomys stephensi*), Dulzura pocket mouse (*Perognathus californicus femoralis*), and oak trees (*Quercus* sp.). The focused survey reports are included or appended to the Biological Resources Assessment.
- California Native Plant Society's[1] (CNPS) Inventory of Rare and Endangered Plants of California (Online edition: www.cnps.org; accessed October 2017).
- California Natural Diversity Database[2] (CNDDB) records search for the Bonsall, CA U.S. Geological Survey 7.5-minute topographic quadrangle and surrounding eight adjacent quadrangles (Fallbrook, Temecula, Pechanga, Morro Hill, Pala, San Luis Rey, San Marcos, and Valley Center) (CDFW 2017).
- Draft North County Subarea Plan of the San Diego County Multiple Species Conservation Program (MSCP).

The potential for special-status species to occur on the project site is based on the proximity of the proposed project to previously recorded occurrences identified in the aforementioned sources, documented onsite vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences and geographic ranges of special-status plant and wildlife species known to occur in the region. A list of special-status plant and animal species recorded in the vicinity of the

1 The CNPS database lists historical and recent occurrences of special-status plant species

2 The CNDDB lists historical and recently recorded occurrences of both special-status plant and wildlife species.

proposed project, based on the reconnaissance-level site survey, previously prepared reports, and data sources, is provided in Appendix B of the Biological Resources Assessment (**Appendix D**).

3.4.2 Environmental Setting

The environmental setting described below includes a general description of the regional setting in which the project site occurs, as well as a detailed description of the project site setting that may be impacted as a result of construction and operations of the proposed project.

Regional Setting

The project site is regionally located within the community of Bonsall, within an unincorporated area of northern San Diego County, California. The project site is regionally situated within an unincorporated area of north San Diego County between the community of Fallbrook to the north, the City of Oceanside to the west, the community of Valley Center to the west, and the North County Metropolitan Subregion and City of Vista to the south.

Regional geographic features surrounding the area include the San Luis Rey River Valley to the south, the Peninsular Ranges to the north and east, and minor ravines, valleys, and hills to the west, that eventually descend towards the Pacific Ocean further to the west. The portion of the Peninsular Ranges in the region reach to a height of 6,142 feet at Palomar Mountain, located approximately 20 miles to the east. The San Luis Rey River is a perennial drainage that flows southwesterly through the project site and eventually drains into the Pacific Ocean.

Plant communities typically found within the region include a mosaic of xeric habitats such as alluvial scrub and chaparral. Riparian or woodland habitat associated with riverine or other aquatic features traverse the landscape as well. Some waterways in the region are perennial and are responsible for the large scale transport of snow melt from the highest peaks in the range to the Pacific Ocean; however, many are intermittent or ephemeral and support only seasonal flows. The aforementioned habitats and resources are known to support a wide variety of common plant and wildlife species, as well as many special-status species protected by federal, state, and local regulations.

Project Setting

The project site consists of a large block of undeveloped land surrounded by residential development to the north, a golf course to the south and west, and Gird Road and residential development to the east. The San Luis Rey River is located approximately 0.4-miles south of the project site. The project site is located within the *Bonsall, California* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map. The project site is gently rolling, with an elevation range of approximately 230 to 300 feet above mean sea level (AMSL). The onsite drainages flow southeast into a tributary to the San Luis Rey River. The approximate center of the project site is located at 33°19'19.85"N, 117°11'44.22"W. The project site is located within the boundaries of the Draft North County Subarea Plan of the MSCP (Subarea Plan).

Plant Communities and Land Uses

A total of six habitat types were observed on the acre project site (**Figure 3.4-1**). The six habitat types observed on the project site consist of non-native grassland, red willow riparian scrub, eucalyptus woodland, coast live oak woodland, ornamental vegetation, and disturbed habitat.

Non-Native Grassland

The project site contains approximately 40.7 acres of Non-native grassland dominant habitat. The property has been disturbed in the past and growth of vegetation has been maintained. Dominant species found in this habitat type include slim oat (*Avena barbata*), black mustard (*Brassica nigra*), ripgut brome (*Bromus diandrus*), Foxtail brome (*Bromus madritensis ssp. rubens*), common barley (*Hordeum vulgare*), tumbleweed (*Amaranthus albus*), nettle leaf goosefoot (*Chenopodium murale*), Canada horseweed (*Erigeron canadensis*), filaree (*Erodium* sp.), mustard (*Hirschfeldia incana*), and saw-toothed goldenbush (*Hazardia squarrosa*). This vegetation community is classified as Tier III by the MSCP.

Red Willow Riparian Scrub

The project site contains approximately 2.84 acres of habitat dominated by red willow (*Salix laevigata*). Four main areas associated with an ephemeral stream or the golf course contain this habitat type. Other dominant species found within this habitat type include arroyo willow (*Salix lasiolepis*), black willow (*Salix nigra*), coyote brush (*Baccharis pilularis*), mulefat (*Baccharis salicifolia*), Italian thistle (*Carduus pycnocephalus*), tocalote (*Centaurea melitensis*), poison hemlock (*Conium maculatum*), fennel (*Foeniculum vulgare*), western stinging nettle (*Hesperocnide tenella*), yellow sweetclover (*Melilotus indicus*), plantain (*Plantago* sp.), coast live oak (*Quercus agrifolia*), California blackberry (*Rubus ursinus*), elderberry (*Sambucus* sp.), and poison oak (*Toxicodendron diversilobum*). This vegetation community is classified as Tier I by the MSCP.

Eucalyptus Woodland

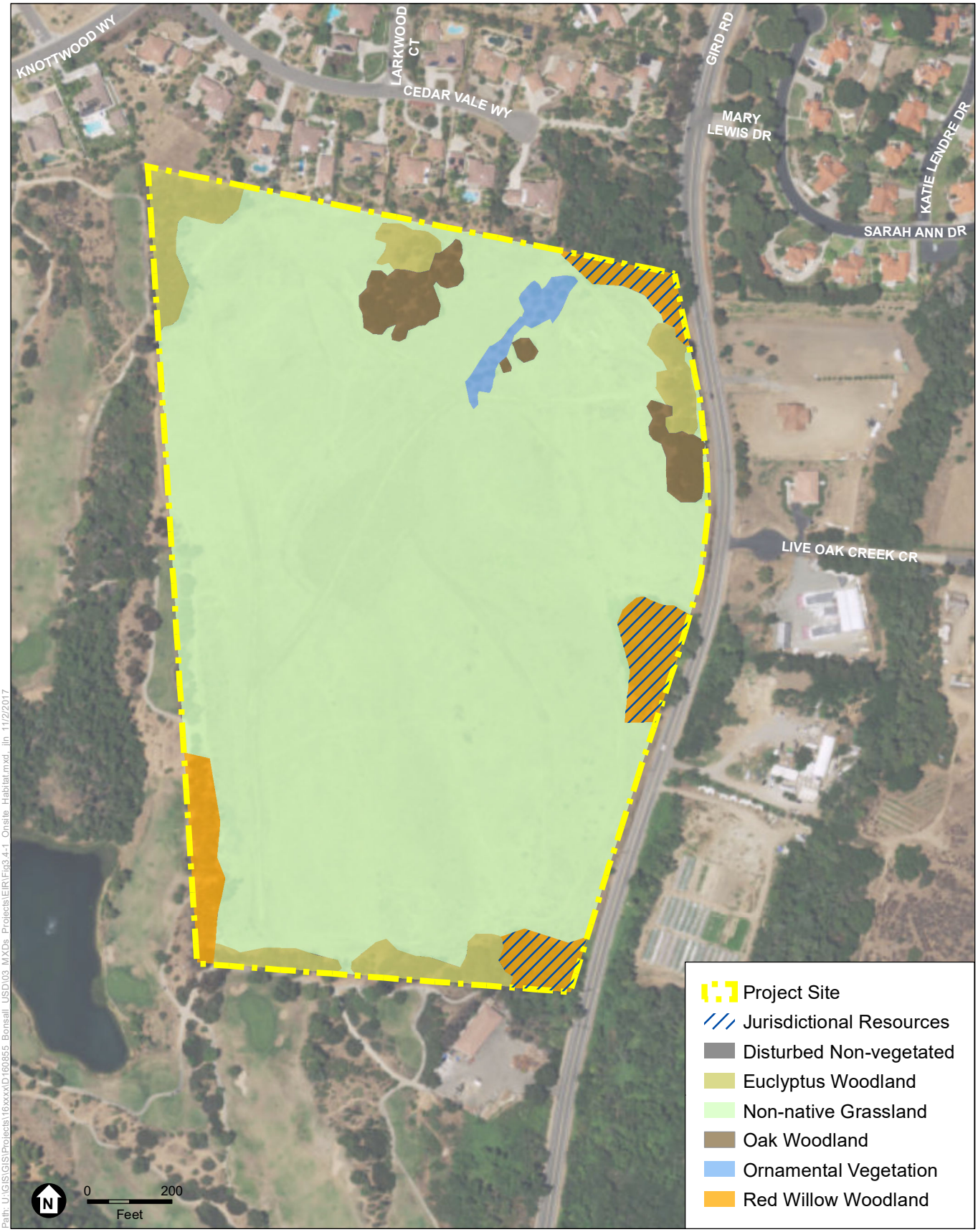
The project site contains approximately 2.78 acres of eucalyptus woodland dominant habitat. These areas are located on the north and south portions of the property. The dominant tree species within this habitat type are red gum (*Eucalyptus camaldulensis*) and blue gum (*Eucalyptus globulus*). This vegetation community is classified as Tier IV by the MSCP.

Coast Live Oak Woodland

The northern portion of the project site contains approximately 1.2 acres of coast live oak (*Quercus agrifolia* var. *agrifolia*) dominated woodland habitat. This vegetation community is classified as Tier I by the MSCP.

Ornamental Vegetation

The project site contains approximately 0.4 acre dominated by non-native ornamental trees. This vegetation community is classified as Tier IV by the MSCP.



SOURCE: ESRI; SanGIS

Bonsall High School / BUSD

Figure 3.4-1
Existing Vegetation/Jurisdictional Areas

ESA

Disturbed Habitat

All access routes, road shoulders, and areas cleared of vegetation showing anthropogenic disturbance have been classified as disturbed, non-vegetated areas. This vegetation community is classified as Tier IV by the MSCP.

Common Wildlife Species

Wildlife species observed during the biological surveys on the project site include species commonly observed in a mix of native habitat areas as well as disturbed and urban environments. Common avian species observed include species such as California scrub jay (*Aphelocoma californica*), Anna's hummingbird (*Calypte anna*), house finch (*Carpodacus mexicanus*), common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), and house sparrow (*Passer domesticus*). Raptors observed include Cooper's hawk (*Accipiter cooperii*), and red-tailed hawk (*Buteo jamaicensis*). Mammal species observed or detected include coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), northern raccoon (*Procyon lotor*), and desert cottontail (*Sylvilagus audubonii*). A single reptile species was observed, western fence lizard (*Sceloporus occidentalis*). No amphibian or fish species were observed during the surveys.

Special-Status Species and Sensitive Natural Communities

The complete list of the 134 special-status species and sensitive natural communities evaluated for their potential to occur on the project site is included in Appendix B of the Biological Resources Assessment (Appendix D). This list includes 68 plants, 66 wildlife, and 11 sensitive natural communities known to occur within the *Bonsall, California* USGS topographic quadrangle, and the surrounding eight quads from a query of the CNDDB (CDFW 2017).

Sensitive Natural Communities

There are 11 sensitive natural communities that have been previously recorded in the vicinity of the project site including: San Diego Mesa Claypan Vernal Pool, San Diego Mesa Hardpan Vernal Pool, Southern Coastal Salt Marsh, Southern Cottonwood Willow Riparian Forest, Southern Interior Basalt Flow Vernal Pool, Southern Maritime Chaparral, Southern Riparian Forest, Southern Riparian Scrub, Southern Sycamore Alder Riparian Woodland, Southern Willow Scrub, and Valley Needlegrass Grassland. The onsite vegetation communities that are considered sensitive include non-native grassland, red willow riparian scrub, and coast live oak woodland. These vegetation communities are included in Tiers I, II, or III of the San Diego County MSCP vegetation communities. Onsite non-native grassland is highly disturbed.

Special-Status Plants

Although 58 special-status plant species were determined to have a potential to occur in the vicinity of the project site, only eight plant species have a potential to occur on the project site. The 50 special-status plant species with no potential to occur on the project site were omitted from further evaluation due to the absence of suitable habitat, lack of recorded occurrences in the vicinity of the project site, and the project site is outside the known range or elevation for the species to occur. The eight special-status plant species with a medium to high potential to occur on the project site are included in **Table 3.4-1**, which identifies the protective status of each

species and the preferred habitat for each species. The potential for the species to occur are also noted. The "Potential for Occurrence" categories are defined as follows:

- **Low Potential:** The study area and/or immediate vicinity contains marginal (low quality) habitat for a particular species and is within the species' known range OR there is suitable habitat in the study area but the species has not been reported in the general area for more than 25 years.
- **Medium Potential:** The study area contains suitable habitat for a particular species and lies within the species' known range OR the study area contains marginally suitable habitat and the species is known to occur in the general area.
- **High Potential:** The study area and/or immediate vicinity provides suitable habitat for a particular species and the species has been documented in the general vicinity within the last 25 years.
- **Present**: The species was observed on the project site during the biological reconnaissance, or other previous surveys conducted, or recorded on a database as occurring on the project site.

TABLE 3.4-1
SPECIAL-STATUS PLANT SPECIES WITH A POTENTIAL TO OCCUR

Common and Scientific Name	Status[1] (Federal/State/ CNDDB/CRPR)	Habitat	Potential to Occur in Project Site
San Diego ambrosia *Ambrosia pumila*	FE/--/S1/1B.1	Found in chaparral, coastal scrub, valley & foothill grassland. Flowers between April and July.	**Medium.** Suitable habitat present within the grassland habitat on the project site.
smooth tarplant *Centromadia pungens* ssp. *Laevis*	--/--/S2/1B.1	Occurs within alkali playa, chenopod scrub, meadows & seeps, riparian woodland, valley & foothill grasslands, and wetlands. Flowers between April and September.	**Low.** This species may occur within the grassland habitats and drainages on the project site. However, this species was not observed on the project site during focused surveys.
Wiggins' cryptantha *Cryptantha wigginsii*	--/--/S1/1B.2	This species is found primarily within coastal scrub habitats. Flowers between February and June.	**Low.** Moderately suitable habitat for this species is present primarily in adjacent areas. This species was not observed during biological surveys.
Palmer's grapplinghook *Harpagonella palmeri*	--/--/S3/4.2	Found in chaparral, coastal scrub, valley & foothill grassland habitats. Flowers between March and April.	**Low.** This species may occur within the grassland habitats and drainages on the project site. However, this species was not observed on the project site during focused surveys.
Santa Lucia dwarf rush *Juncus luciensis*	--/--/S3/1B.2	This species occurs in chaparral, great basin scrub, lower montane coniferous forest, meadows & seeps, vernal pool, and wetland environments. Flowers between April and August.	**Low.** This species may occur within the drainages on the project site. However, this species was not observed on the project site during focused surveys.
Robinson's pepper-grass *Lepidium virginicum* var. *robinsonii*	--/--/S3/4.3	Found in chaparral and coastal scrub habitats. Flowers between March and June.	**Low.** Moderately suitable habitat for this species is present primarily in adjacent areas. This species was not observed during biological surveys.

Common and Scientific Name	Status[1] (Federal/State/ CNDDB/CRPR)	Habitat	Potential to Occur in Project Site
Mud nama *Nama stenocarpa*	--/--/S1S2/2B.2	Primarily found in marshes, swamps, and wetland habitats. Flowers between March and October.	**Low.** This species may occur within the drainages on the project site. However, this species was not observed on the project site during focused surveys.
Nuttal's scrub oak *Quercus dumosa*	--/--/S3/1B.1	Known to occur in chaparral, closed-cone coniferous forests, and coastal scrub habitats. Flowers between March and May.	**Medium.** This species has a high potential to occur within the oak woodland habitat on the project site. However, this species was not observed during focused surveys.

[1]Status:

Federal:
FE: Federally listed as endangered
FT: Federally listed as threatened

State
SCE: State candidate for listing as endangered
SE: State-listed as endangered
ST: State-listed as threatened
SR: State rare

California Rare Plant Ranks:
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
3: Plants About Which We Need More Information – A Review List
4: Plants of Limited Distribution – A Watch List
0.1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 – Fairly threatened in California (20–80% occurrences threatened / moderate degree and immediacy of threat)
0.3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Special-Status Wildlife

A total of 65 special-status wildlife species have been recorded on the CNDDB in the vicinity of the project site. Based on the habitats (i.e., soils and vegetation) that were characterized during the field survey, previously recorded occurrences, and known distribution and range limitations, it was determined that 22 wildlife species have a medium to high potential to occur or were determined to be present within the project site based on historic records. Species with no potential to occur based on habitat requirements and species range were omitted from further discussion. **Table 3.4-2** below identifies the protective status and preferred habitat of each special-status wildlife species with the potential to occur within the project site. The "Potential for Occurrence" category is defined as follows:

- **Low Potential:** The study area and/or immediate vicinity contains marginal (low quality) habitat for a particular species and is within the species' known range OR there is suitable habitat in the study area but the species has not been reported in the general area for more than 25 years.
- **Medium Potential:** The study area contains suitable habitat for a particular species and lies within the species' known range OR the study area contains marginally suitable habitat and the species is known to occur in the general area.
- **High Potential:** The study area and/or immediate vicinity provides suitable habitat for a particular species and the species has been documented in the general vicinity within the last 25 years.
- **Present**: The species was observed on the project site during the biological reconnaissance, or other previous surveys conducted, or recorded on a database as occurring on the project site.

TABLE 3.4-2
SPECIAL-STATUS WILDLIFE SPECIES WITH A POTENTIAL TO OCCUR

Common and Scientific Name	Status[1] (Federal/State)	Habitat	Potential to Occur in Project Site
Cooper's hawk *Accipiter cooperii*	--/WL	Found in cismontane woodland, riparian forest, riparian woodland, and upper montane coniferous forest.	**High.** Suitable habitat present within the riparian scrub and oak woodland habitat on the project site.
Golden eagle *Aquila chrysaetos*	--/FP	Occurs within broadleaved upland forest, cismontane woodland, coastal prairie, great basin grassland, great basin scrub, lower montane coniferous forest, pinon & juniper woodlands, upper montane coniferous forest, and valley & foothill grassland.	**Medium.** This species may forage within the grassland habitat on the project site.
Bell's sage sparrow *Artemisiospiza belli belli*	--/WL	This species is found primarily within chaparral and coastal scrub habitats.	**Low.** Moderately suitable habitat for this species is present primarily in adjacent areas. This species was not observed during biological surveys.
Orange-throat whiptail *Aspidoscelis hyperythra*	--/WL	Found in chaparral, cismontane woodland, and coastal scrub habitats.	**Low.** Moderately suitable habitat for this species is present primarily in adjacent areas. This species was not observed during biological surveys.
Burrowing owl *Athene cunicularia*	--/SSC	Occurs within coastal prairie, coastal scrub, great basin grassland, great basin scrub, mojavean desert scrub, sonoran desert scrub, and valley & foothill grassland.	**High.** This species has a high potential to occur within the grassland habitat and disturbed areas on the project site.
ferruginous hawk *Buteo regalis*	--/WL	Found in great basin grassland, great basin scrub, pinon & juniper woodlands, and valley & foothill grasslands.	**Medium.** This species may forage within the grassland and woodland habitat on the project site.
Swainson's hawk *Buteo swainsoni*	--/ST	Primarily found in great basin grassland, riparian forest, riparian woodland, and valley & foothill grassland.	**Medium.** This species may forage within the grassland and woodland habitat on the project site.
Dulzura pocket mouse *Chaetodipus californicus femoralis*	--/SSC	Known to occur in chaparral, coastal scrub, and valley & foothill grasslands.	**Medium.** This species may occur within the grassland habitat on the project site.
northern harrier *Circus cyaneus*	--/SSC	Found in coastal scrub, great basin grassland, marshes & swamps, riparian scrub, valley & foothill grasslands, and wetland habitats.	**High.** This species may nest and forage within the riparian scrub and grassland habitat on the project site.
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT/SE	Found primarily within riparian forests.	**Medium.** There is a moderate potential for this species to occur within the riparian scrub habitat on the project site.
San Diego ringneck snake *Diadophis punctatus similis*	USFS/--	This species occurs in wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forests, and woodlands.	**Medium.** There is a moderate potential for this species to occur within the grassland and riparian habitat on the project site.
Stephens' kangaroo rat *Dipodomys stephensi*	FE/ST	This species is primarily found within coastal scrub, and valley & foothill grassland habitats.	**Medium.** There is a moderate potential for this species to occur within the grassland habitat on the project site.

Common and Scientific Name	Status[1] (Federal/State)	Habitat	Potential to Occur in Project Site
White-tailed kite Elanus leucurus	--/FP	Found within cismontane woodland, marshes & swamps, riparian woodland, valley & foothill grassland, and wetland habitats.	**Medium.** This species may forage within the grassland and woodland habitat on the project site.
Southwestern willow flycatcher *Empidonax traillii extimus*	FE/SE	This species only occurs within riparian woodland habitats.	**Medium.** There is a moderate potential for this species to occur within the riparian scrub habitat on the project site.
Yellow-breasted chat *Icteria virens*	--/SSC	This species can be found in riparian forest, riparian scrub, and riparian woodland habitats.	**Medium.** This species may occur within the riparian scrub habitat on the project site.
Hoary bat *Lasiurus cinereus*	--/--	This species commonly occurs in broadleaved upland forest, cismontane woodland, lower montane coniferous forest, north coast coniferous forest.	**Medium.** This species may occur within the riparian scrub habitat on the project site.
Western yellow bat *Lasiurus xanthinus*	--/SSC	This species occurs within palm trees associated with desert washes or areas adjacent to a freshwater source.	**Medium.** Suitable habitat exists within the riparian habitat on the project site, however, no significant stands of palm trees occur on the project site.
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	--/SSC	This species inhabits a variety of habitats including coastal sage scrub.	**Medium**. This species may occur in the grassland habitat on the project site.
Coast horned lizard *Phrynosoma blainvillii*	--/SSC	Found within chaparral, cismontane woodland, coastal bluff scrub, coastal scrub, desert wash, pinyon & juniper woodlands, riparian scrub, riparian woodland, and valley & foothill grasslands.	**Medium**. This species may occur in the grassland habitat on the project site.
Yellow warbler *Setophaga petechia*	--/SSC	Occurs in riparian forest, riparian scrub, and riparian woodland habitats.	**Medium.** Potentially suitable nesting habitat is present within the riparian scrub habitat on the project site.
Western spadefoot *Spea hammondi*	--/SSC	This species can be found in cismontane woodland, coastal scrub, valley & foothill grasslands, vernal pools, and wetlands.	**Low**. Suitable habitat exists but the project site lacks a perennial stream and microhabitat to support this species.
least Bell's vireo *Vireo bellii pusillus*	FE/SE	This species only occurs in riparian forest, riparian scrub, and riparian woodland habitats dominated by willows.	**Medium.** There is a potential for this species to nest within the riparian scrub habitat on the project site.

[1]Status:

Federal:
FE = Federally listed endangered
FT = Federally listed threatened

State:
SE = State listed endangered
ST = State listed threatened

Other:
FP = California Department of Fish and Game Fully Protected Species
SSC = California Department of Fish and Game Species of Special Concern
WL = California Department of Fish and Game Watch List
USFS = U.S. Forest Service Sensitive

Jurisdictional Resources

The San Luis Rey River is a perennial drainage that flows southwesterly through the project site. The project site contains three unnamed tributaries to the San Luis Rey River. These onsite

ephemeral drainages flow southeast through the project site to an unnamed tributary to the San Luis Rey River which then flows south to the San Luis Rey River and ultimately into the Pacific Ocean. The Jurisdictional Delineation report prepared for the project identified the extent of jurisdictional wetlands, waters, and riparian resources within the project site (Appendix D). The project site contains approximately 1.5 acres of ephemeral drainages that would be considered jurisdictional Waters of the U.S., which are regulated by the USACE and the Regional Water Quality Control Board (RWQCB), under Section 404 and 401 of the Clean Water Act, respectively. Furthermore, the project site contains 2.4 acres of ephemeral drainages and associated riparian habitat that would be considered California Department of Fish and Wildlife (CDFW) jurisdictional drainage features, which is regulated by Section 1602 of the California Department of Fish and Game Code. In addition, the 2.4 acres of ephemeral drainages and associated riparian habitat would also be considered County Resource Protection Ordinance (RPO) Wetlands Areas.

Wildlife Movement and Habitat Linkages

Wildlife movement corridors can be local or regional in scale; their functions may vary temporally and spatially based on conditions and species present. Wildlife corridors represent areas where wildlife movement is concentrated due to natural or anthropogenic constraints. Local corridors provide access to resources such as food, water, and shelter. Animals use these corridors, which are often hillsides or riparian areas, to move between different habitats. Regional corridors provide these functions and link two or more large habitat areas. They provide avenues for wildlife dispersal, migration, and contact between otherwise distinct populations.

The project site is not located within a designated wildlife corridor or linkage. The project site consists of a large block of undeveloped land surrounded by residential development to the north, a golf course to the south and west, and Gird Road and residential development to the east. The project site is surrounded by urban and suburban development. The ephemeral drainage dominated by red willow habitat located on the southeast portion of the site flows beneath Gird Road and connects to a large riparian area to the southeast. It is likely the project site serves a function in local wildlife movement from the onsite drainages/riparian areas to the watershed surrounding the San Luis Rey River.

Critical Habitat

Critical habitat is defined as areas of land, water, and air space that contain the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated critical habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Critical habitat is designated by USFWS for endangered and threatened species per the federal ESA (16 U.S.C. § 1533 (a)(3)), and to the extent prudent and determinable. Special management of critical habitat, including measures for water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types is required to ensure the long-term survival and recovery of the identified species. Critical habitat designation delineates all suitable habitat for the species, whether or not it is occupied.

The project site is located within designated critical habitat for the arroyo toad (*Anaxyrus californicus*). Designated critical habitat for coastal California gnatcatcher occurs approximately

500 feet to the east of the project site. Designated critical habitat for the San Diego ambrosia occurs approximately 0.30 miles to the southeast of the project site. In addition, designated critical habitats for least Bell's vireo and southwestern willow flycatcher occurs approximately 0.28 miles south of the project site.

3.4.3 Regulatory Setting

Federal

Endangered Species Act (USC, Title 16, § 1531 through 1543)

The FESA and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. In addition, the FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA also provides a program for the conservation and recovery of threatened and endangered species as well as the conservation of designated critical habitat that USFWS determines is required for the survival and recovery of these listed species.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in CCR Title 50, Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing "take" (i.e., to harass, harm, pursue, hunt, wound, kill, etc.) that may occur incidental to an otherwise legal activity.

Section 9 lists those actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at 50 CFR 13 and 17 for species under the jurisdiction of USFWS and 50 CFR 217, 220, and 222 for species under the jurisdiction of NMFS.

Migratory Bird Treaty Act (16 USC 703 through 711)

The MBTA is the domestic law that affirms, or implements, a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to

take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States.

Federal Clean Water Act (33 USC 1251 through 1376)

The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project operator for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The RWQCB administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found at 33 CFR 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetlands and Other Waters of the United States

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent of waters of the United States is generally defined as the portion that falls within the limits of the OHWM. Typically, the OHWM corresponds to the five to seven-year flood event.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (USACE, 1987).

State

California Endangered Species Act (California Fish and Game Code § 2050 et seq.)

The CESA establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are

no state agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is "consistent" with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project operator would have to apply for a take permit under Section 2081(b).

California State Fish and Game Code § 1602

Under these sections of the California Fish and Game Code, the project operator is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the code, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events.

Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications, and bid documents for the project.

California Fully Protected Species

California fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species.

California State Fish and Game Code §§ 2080 and 2081

Section 2080 of the California Fish and Game Code states that "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this

determination based on available scientific information and considers the ability of the species to survive and reproduce.

California State Fish and Game Code §§ 3503, 3503.5, 3513, and 3800

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including its nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. This statute does not provide for the issuance of any type of incidental take permit.

Section 3800 of the California Fish and Game Code affords protection to all nongame birds, which are all birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds. Section 3513 of the California Fish and Game Code upholds the MBTA by prohibiting any take or possession of birds that are designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA.

California Environmental Quality Act Guidelines, § 15380

Although threatened and endangered species are protected by specific federal and state statutes, *CEQA Guidelines* § 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the *CEQA Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

Native Plant Protection Act (California Fish and Game Code §§ 1900 through 1913)

California's NPPA requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change

in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed. The project operator is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

California Wetland Definition

Unlike the federal government, California has adopted the Cowardin *et al*. (1979) definition of wetlands. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (at least 50 percent of the aerial vegetative cover); (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and saturated with water or covered by shallow water at some time during the growing season of each year.

Under normal circumstances, the federal definition of wetlands requires all three wetland identification parameters to be met, whereas the Cowardin definition requires the presence of at least one of these parameters. For this reason, identification of wetlands by state agencies consists of the union of all areas that are periodically inundated or saturated or in which at least seasonal dominance by hydrophytes may be documented or in which hydric soils are present.

Section 401 Clean Water Act

Under Section 401 of the CWA, the local RWQCB, Santa Ana RWQCB, must certify that actions receiving authorization under Section 404 of the CWA also meet state water quality standards. The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. Compensatory mitigation for impacts to wetlands and/or waters of the state are required.

Porter-Cologne Water Quality Control Act

The RWQCB also has jurisdiction over waters deemed ‘isolated’ or not subject to Section 404 jurisdiction under the SWANCC decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state and prospective dischargers are required to obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

Local

In San Diego County, regulations have been adopted which define and provide protection to certain types of sensitive biological resources. The following County regulations address biological resources for discretionary development projects that are required to be processed through the San Diego County Planning and Development Services Department. Pursuant to Government Code Section 53094, school districts are exempt from local zoning and land use regulatory authority, and as such the proposed project is not required to obtain any of the discretionary approvals necessitating compliance with the County’s Resource Protection Ordinance (86.603) and Biological Mitigation Ordinance (86.502). Even so, the project has been designed to avoid impacts to the sensitive resources identified in the following ordinances and plans:

Resource Protection Ordinance (RPO)

- The purpose of the RPO is to protect sensitive resources and to prevent their degradation and loss. The sensitive resources protected by the RPO include wetlands, wetland buffer areas, and sensitive habitat lands, which are defined as follows:
- Lands having one or more of the following attributes are "wetlands'':
  - At least periodically, the land supports a predominance of hydrophytes (plants whose habitat is water or very wet places);
  - The substratum is predominantly undrained hydric soil; or
  - An ephemeral or perennial stream is present, whose substratum is predominately non-soil, and such lands contribute substantially to the biological functions or values of wetlands in the drainage system.
- "Wetland buffer" areas include lands that provide a buffer area of an appropriate size to protect the environmental and functional habitat values of the wetland, or which are integrally important in supporting the full range of the wetland and adjacent upland biological community. Buffer widths shall be 50 to 200 feet from the edge of the wetland as appropriate based on above factors. Where oak woodland occurs adjacent to the wetland, the wetland buffer shall include the entirety of the oak habitat (not to exceed 200 feet in width).
- "Sensitive habitat lands" include those which support unique vegetation communities, or the habitats of rare or endangered species or sub-species of animals or plants, including the area which is necessary to support a viable population of any of these species in perpetuity, or which is critical to the proper functioning of a balanced natural ecosystem or which serves as a functioning corridor.

Per the RPO (86.503(8), public facilities projects (which are found to be in compliance with subsections A-F), and non-discretionary projects not required to process an Environmental Initial Study through PDS, are determined to be exempt from the RPO. Since the project meets both exemption criteria, it is considered exempt from the RPO.

Multiple Species Conservation Program (MSCP) and Biological Mitigation Ordinance (BMO)

In response to the continued loss of sensitive biological resources, especially coastal sage scrub (CSS), the County adopted the MSCP in 1997. The proposed project must conform to the MSCP Subarea Plan, and the project must demonstrate that it has incorporated avoidance measures to meet the preserve design requirements of the Plan. To implement the MSCP Subarea Plan, the County enacted the BMO.

Habitats are classified in different "Tier" levels that require different levels of mitigation. Application of the BMO to individual projects is the method by which the County will achieve the conservation goals set forth in the MSCP. Mitigation requirements for different habitat types are based on the location of both the impact and the proposed mitigation. Impacts within core habitat areas or pre-approved mitigation areas require higher mitigation ratios. Conversely, more credit is allowed for preservation or mitigation within core habitat areas or pre-approved mitigation areas.

The project site is located within the boundary of the proposed North County MSCP. However, the North County MSCP is not an approved program, and as a result, has no binding effect on the proposed project. Even if the North County MSCP were approved, designated Public Agency Lands are not included in the MSCP. The draft North County MSCP and the San Diego County General Plan (Fallbrook Community Plan) designate the project site as Public Agency Lands. As a result, for both reasons, the project site is not subject to compliance with the North County MSCP.

Pursuant to Section 86.503 (8) of the BMO, public facilities projects (which are found to be in compliance with subsections A-F), and non-discretionary projects not required to process an Environmental Initial Study through PDS, are determined to be exempt from the BMO. Since the project meets both exemption criteria, it is considered exempt from the BMO. Mitigation requirements contained within the BMO do not apply to the proposed project.

San Diego County General Plan: Conservation and Open Space Element

The Conservation and Open Space Element of the General Plan provides guiding principles for the conservation of biological resources. This element also outlines land use-based conservation goals and policies that protect the ecological and lifecycle needs of threatened, endangered, or otherwise sensitive species and their associated habitats.

3.4.4 Thresholds of Significance

The criteria used to determine the level of significance of impacts to biological resources are based on Appendix G of the *CEQA Guidelines*. The proposed project would have a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS (see Impact 3.4-1, below);
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS (see Impact 3.4-2, below);
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (see Impact 3.4-3, below);
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites (see Impact 3.4-4, below);
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (see Impact 3.4-5, below); or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (see Impact 3.4-6, below).

3.4.5 Methodology

Development within the project site area would result in a potential direct, indirect, temporary, and permanent impact to biological resources. A direct impact would be a modification, disturbance, or destruction of biological resources that would result from project-related activities, such as the removal of a wetland. An indirect impact would be an impact to protected plant and wildlife species or habitat from project-related development that has the potential to indirectly affect the species or habitat, such as the introduction of invasive plant species or increased noise levels. Temporary impacts would be impacts that are considered to be reversible and temporary in nature, such as noise generated during construction. Permanent impacts are impacts that are considered to be irreversible. The analysis of potential impacts from the project was derived from examining the existing setting on the project site described in Section 3.4.1 above, and the construction requirements of the project.

Construction Impacts

The proposed project would provide approximately 150,500 square feet (sf) building floor area and approximately 21.4 acres of recreational fields, parking, and landscape/hardscape. Minor improvements to Gird Road will be required to add a north bound left turn lane pocket and southbound deceleration driveway transition. These improvements will require minor shoulder grading and 6,600 square feet of new pavement located with the county right of way. Project construction noise impacts are not expected to exceed the existing roadway noise associated with existing Gird Road. Development of the project will impact approximately 26.1 acres of the 48.9-acre site, as shown on **Figure 3.4-2**.

Operational Impacts

The operational requirements of the project will consist of an active high school grounds with daily student uses, recreation, and vehicle traffic. The potential operational impacts to biological resources will be minimal since the operational requirements of the high school are not expected to result in the removal of habitat for special-status species, impact jurisdictional waters, impede wildlife movement, or reduce the overall quality of biological resources immediately adjacent to the project site beyond what will occur from construction of the project. Operational noise is not expected to result in negative effects on adjacent open space areas or areas adjacent to the proposed Gird Road Improvements. Therefore, only potential construction-related impacts to biological resources will be evaluated further in this section.

SOURCE: ESRI; SanGIS

Bonsall High School / BUSD

Figure 3.4-2
Impacted Vegetation/Jurisdictional Areas

ESA

3.4.6 Impact Analysis

Effects on Species

Impact 3.4-1: The project could have significant effects on species because the project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

State and Federally Listed Species

One federally-listed plant species, four federally and state-listed wildlife species, and, one state-listed bird species have the potential to occur on the project site and may be impacted during construction of the proposed project.

San Diego Ambrosia

San Diego ambrosia is a federally endangered and CNPS 1B.1 listed plant species found in wetland/riparian areas in chaparral, grasslands, and coastal sage scrub. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species. Focused surveys conducted on the site for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Western Yellow-billed Cuckoo

The western yellow-billed cuckoo is a federally threatened and state endangered bird. It is found in cottonwood-willow forests. The proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15. Focused surveys conducted for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Stephen's Kangaroo Rat

The Stephens' kangaroo rat is a federally endangered and state threatened rat species. It is found is coastal sage scrub, and valley and foothill grasslands. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to impact this species. Focused surveys conducted on the site for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Southwestern Willow Flycatcher

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a federal and state endangered bird species that is found in riparian woodlands. The proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15. Focused surveys conducted for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Least Bell's Vireo

The least Bell's vireo is a federally endangered and state endangered species found in willow and mulefat scrub. The proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15. Focused surveys conducted for this species found that this species does not occur on the site or within the Gird Road improvement area. Therefore, no impacts to this species are anticipated to result from project implementation.

Swainson's Hawk

The Swainson's hawk is a state threatened species. It is found in riparian forests and woodlands. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Non-State or Federally-Listed Species

Two CDFW fully protected wildlife species, golden eagle and white-tailed kite; ten California species of special concern, orange-throat whiptail, burrowing owl, Dulzura pocket mouse, northern harrier, yellow-breasted chat, western yellow bat, San Diego black-tailed jackrabbit, coast horned lizard, yellow warbler, and western spadefoot; three CDFW watch list wildlife species, Cooper’s hawk, Bell’s sage sparrow, and ferruginous hawk; one S4-listed California sensitive species, hoary bat; one U.S. Forest Service sensitive species, San Diego ringneck snake; and one CRPR Rank 1B.1 plant, Nuttal’s scrub oak have the potential to occur on the project site.

Golden Eagle

The golden eagle is a CDFW fully protected species. This species is found in a variety of habitats ranging from arctic to desert, including tundra, shrublands, grasslands, coniferous forests, farmland, and areas along rivers and streams. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

White-tailed Kite

The white-tailed kite is a CDFW fully protected species and is found in coastal and valley lowlands. It forages in grasslands, wetlands, and meadows and nests in oak trees, willows, or other tree stands between February and October. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Orange-throat Whiptail

The orange-throat whiptail is a CDFW Species of Special Concern. It is found in coastal sage scrub, chaparral, and valley foothill hardwood habitat. This species was not observed on the site

during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to impact this species.

Burrowing Owl

The burrowing owl is a CDFW Species of Special Concern. It is found in open coastal sage scrub, grasslands, desert washes and areas with small mammal burrows. Burrowing owls' nesting season is between March 1 and August 31. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species if occurring during the nesting season. Focused surveys conducted on the site for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Dulzura Pocket Mouse

The Dulzura pocket mouse is a CDFW Species of Special Concern. It is found in coastal sage scrub, chaparral, and valley and foothill grasslands communities, and the project site does contain habitat for this species. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species. Focused surveys conducted on the site for this species found that this species does not occur on the site, therefore, no impacts to this species are anticipated to result from project implementation.

Northern Harrier

The northern harrier is a CDFW Species of Special Concern. It is found in wide-open habitats ranging from coastal scrub to riparian scrub to grasslands to fields and marshes. Their nests are concealed on the ground in grasses or wetland vegetation. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Yellow-breasted Chat

The yellow-breasted chat is a CDFW fully protected species and is found in riparian woodlands, riparian, scrub, and riparian forests. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Western Yellow Bat

The western yellow bat is a California Species of Special Concern. It is found in chaparral and coastal sage scrub, and desert. The project site contains habitat that this species can use for roosting. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of

structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

San Diego Black-tailed Jackrabbit

The San Diego black-tailed jackrabbit is a CDFW Species of Special Concern and is found in coastal sage scrub. The project site does contain suitable habitat for this species. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to impact this species.

Coast Horned Lizard

The coast horned lizard is a CDFW Species of Special Concern. It is found in coastal sage scrub, chaparral, and valley foothill hardwood habitat. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to impact this species.

Yellow Warbler

The yellow warbler is a CDFW Species of Special Concern. It is found in riparian areas with stands of willow and cottonwoods. It nests in trees and its nesting season is between March 15 and September 15. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Western Spadefoot Toad

The western spadefoot toad is a CDFW Species of Special Concern. It is found in grasslands and they breed in shallow temporary pools of water formed by seasonal rains. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

Cooper's Hawk

The Cooper's hawk is a CDFW watch list wildlife species. It is found is riparian areas with stands of willow and cottonwoods. It nests in trees and its nesting season is between February 15 and August 15. The proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Bell's Sage Sparrow

The Bell's sage sparrow is a CDFW watch list wildlife species. It is found and nests in chaparral and coastal sage scrub. The project site does have nesting habitat for this species. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal,

grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Ferruginous Hawk

The ferruginous hawk is a CDFW watch list wildlife species. It is found in in grasslands, prairie, sagebrush steppe, scrubland, and pinyon-juniper woodland edges. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Hoary Bat

The hoary bat is a CDFW S4-listed sensitive species and is found in coastal sage scrub. The project site contains habitat that this species can use for roosting. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

San Diego Ringneck Snake

The San Diego ringneck snake is a USFS sensitive species. It is found in coastal sage scrub, and chaparral under rocks, wood bark, boards, and other surface debris. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

Nuttal's Scrub Oak

Nutta'ls scrub oak is a CRPR rank 1B.1 species that occurs in oak woodlands, coastal scrub and chaparral habitats. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

Significance Determination: Potentially Significant

Mitigation Measures

BIO-1: Prior to construction activities, a qualified biologist shall conduct a preconstruction survey to determine the presence/absence of any special-status species identify any sensitive biological resources to flag for avoidance. Any mammal or reptile species that may be present within the project area shall be relocated outside of the impact areas to the extent feasible.

BIO-2: In addition, if bat species are identified as roosting in areas that will be impacted, prior to construction, the applicant shall prepare a plan to exclude bat species from impact area. If bats cannot be excluded from bat roosts, work activities will be avoided within 100 feet of active maternity roosts until bat pups have been weaned and are deemed volant (i.e. able to fly) by a qualified biologist.

BIO-3: To avoid any direct impacts to raptors and/or any native/migratory birds, removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of disturbance must occur during the breeding season, the qualified biologist shall conduct a pre-construction survey to determine the presence or absence of nesting birds on the proposed area of disturbance. The pre-construction survey shall be conducted within 10 calendar days prior to the start of construction activities (including removal of vegetation). BUSD shall document the results of the pre-construction survey prior to initiating any construction activities. If nesting birds are detected, a letter report or mitigation plan in conformance with the applicable state and federal law (i.e. appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided.

Significance After Mitigation: Less than Significant

Riparian Habitat or Sensitive Natural Community

Impact 3.4-2: The project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

Development of the project will result in impacts to plant communities. Direct impacts consist of any ground-disturbing activities (i.e., vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc.). These areas will be permanently impacted by the construction of the project, including the roadway improvements within the Gird Road ROW. **Table 3.4-3** lists the approximate total acreages of plant communities that will be impacted by project. Calculations were based on the currently proposed development design in conjunction with the vegetation map from field surveys and aerial imagery.

TABLE 3.4-3
PROJECT IMPACTS TO VEGETATION COMMUNITIES

Vegetation Type	Habitat Tier	Impact Acres	Avoided Acres
Red Willow Riparian Scrub	I	0.0	2.8
Coast Live Oak Woodland	I	0.0	1.2
Non-Native Grassland	III	25.0	15.7
Disturbed Habitat	IV	1.0	0.0
Eucalyptus Woodland	IV	0.1	2.7
Ornamental Vegetation	IV	0.0	0.4
Total		**26.1**	**22.8**

The proposed project will result in impacts to 25.0 acres of non-native grassland, 1.0 acre of disturbed habitat and 0.1 acre of eucalyptus woodland. A total of 15.7 acres of non-native grassland, 2.8 acres of red willow riparian scrub habitat, 2.7 acres of eucalyptus woodland, 1.2 acres of coast live oak woodland, and 0.4 acre of ornamental vegetation will be avoided and preserved by the proposed project. The project was designed to avoid impacts to onsite sensitive habitats. An additional 0.1 acre of impact to disturbed area will occur associated with offsite Gird Road improvements. No direct impacts to sensitive habitats will occur as a result of project implementation; therefore, no mitigation is required.

Critical Habitat

The project site is located within designated critical habitat for the arroyo toad. Approximately 16.1 acres of arroyo toad critical habitat occurs within the eastern portion of the project site. The primary constituent elements of critical habitat for the arroyo toad include the following:

- rivers or streams with a hydrologic regime that supplies sufficient flowing water of suitable quality and sufficient quantity and at the appropriate times to provide space, food, and cover needed to sustain eggs, tadpoles, metamorphosing juveniles, and adult breeding toads;
- low-gradient stream segments (typically less than 4 percent) with sandy or fine gravel substrates which support the formation of shallow pools and sparsely vegetated sand and gravel bars for breeding and rearing of tadpoles and juveniles;
- a natural flooding regime or one sufficiently corresponding to a natural regime that will periodically scour riparian vegetation, rework stream channels and terraces, and redistribute sands and sediments, such that adequate numbers and sizes of breeding pools and sufficient terrace habitats with appropriate vegetation are maintained;
- upland habitats (particularly alluvial streamside terraces and adjacent valley bottomlands that include areas of loose soil and dependable subsurface moisture where toads can burrow underground and avoid desiccation) of sufficient width and quality to provide foraging and living areas for sub-adult and adult arroyo toads;
- few or no nonnative species that prey upon or compete with arroyo toads, or degrade their habitat;
- stream channels and upland habitats where manmade barriers do not completely or substantially impede migration to overwintering sites, dispersal between populations, or recolonization of areas that contain suitable habitat; and,
- habitats with limited human-related disturbance.

The project site contains three unnamed, ephemeral tributaries to the San Luis Rey River dominated by red willow dominant vegetation. These drainages do not sustain sufficient supplies of flowing water or support shallow pools necessary to provide space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; or sites for breeding, reproduction, rearing (or development) of offspring. The primary constituent elements necessary for arroyo toad do not occur on the project site. Therefore, impacts to arroyo toad critical habitat are not anticipated to be significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Federally Protected Wetlands

Impact 3.4-3: The project would not have significant effects on wetlands through direct removal, filling, hydrological interruption, or other means.

The proposed project has been designed to avoid impacts to jurisdictional waters. The onsite development of the proposed project will not result in impacts to CDFW jurisdictional Waters of the State and Corps/RWQCB jurisdictional Waters of the U.S. Further, the offsite road improvements within the Gird Road ROW will avoid impacts to CDFW jurisdictional Waters of the State and Corps/RWQCB jurisdictional Waters of the U.S. The proposed Gird Road improvements will be conducted within the existing Gird Road ROW, and any overhanging trees characterized as riparian habitat associated with jurisdictional waters will be trimmed, not removed. Implementation of the project will not result in impacts to CDFW jurisdictional Waters of the State and Corps/RWQCB jurisdictional Waters of the U.S.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Wildlife Corridors and Nursery Sites

Impact 3.4-4: The project would not interfere substantially with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

As described earlier, the project site likely serves a function in local wildlife movement, but it is unlikely to play a major role in regional wildlife movement. The project site is surrounded by urban and suburban development with the exception of a riparian area which exists to the southeast of the project site. The portions of the site associated with the unnamed tributaries to the San Luis Rey River flow beneath the adjacent roadway and connect to the riparian habitat located to the southeast. These areas may provide for the movement of some wildlife. The proposed project will avoid the 2.4 acres of habitat associated with onsite drainages. Therefore, the onsite riparian habitat will continue to provide local wildlife movement between the site and surrounding habitat areas, and no impacts are proposed to wildlife movement corridors and linkages.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Local Policies or Ordinances Protecting Biological Resources

Impact 3.4-5: The project could have significant effects on biological resources because the project could have conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

In San Diego County, regulations have been adopted which define and provide protection to certain types of sensitive biological resources. The following County regulations address biological resources for development projects that are required to be processed through the San Diego County Planning and Development Services Department. Pursuant to Government Code Section 53094, school districts are exempt from local zoning and land use regulatory authority, and as such the proposed project is not required to obtain any of the discretionary approvals necessitating compliance with the County's Resource Protection Ordinance (86.603) and Biological Mitigation Ordinance (86.502). Even so, the project has been designed to avoid impacts to the sensitive resources documented in the above ordinances and plans.

The County of San Diego Municipal Code §75.01 of Chapter 5 Article 1, requires a permit to trim, prune, cut, break, deface, destroy, burn or remove any tree, hedge, plant, shrub, or flower growing or to grow upon any County-owned public property within the unincorporated territory of the County unless authorized in writing to do so by the Director, Department of Public Works, or the Director, Department of Parks and Recreation, whichever is the appropriate County officer, or the Board. Additionally, since the proposed project would not need to comply with the County MSCP, adherence to the RPO is not required.

However, two small canyon live oaks (*Quercus chrysolepis*) will be removed as a result of construction of the access road in the southeast portion of the project site, immediately adjacent to the Gird Road ROW. Removal of oak trees would be considered a significant impact.

Significance Determination: Potentially Significant

Mitigation Measures

BIO-4: The project applicant shall either relocate, or replace all impacted oak trees (2) at a 4:1 ratio, with minimum 24-inch box oak trees of the same species as those impacted. Replaced oak trees shall be shown on the final landscape plans and planted following grading operations.

Significance after Mitigation: Less than Significant

Conservation Plans

Impact 3.4-6: The project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

The project site is located within the boundaries of the Draft North County Subarea Plan of the MSCP. However, the North County Subarea Plan is not an approved program, and as a result, has

no binding effect on the proposed project. Even if the North County Subarea Plan were approved, designated Public Agency Lands are not included in the MSCP. The draft North County Subarea Plan and the San Diego County General Plan (Fallbrook Community Plan) designate the project site as Public Agency Lands. As a result, for both reasons, the project site is not subject to compliance with the North County Subarea Plan of the MSCP or the approved County of San Diego MSCP. Therefore, the proposed project will not result in any impacts to any local or regional Conservation Plans.

Mitigation Measures

No mitigation measures are required.

Significance Determination: No Impact, not applicable

3.4.7 Cumulative Impact Analysis

Effects on Species

The project will not result in potentially significant impacts to special-status species due to the implementation of mitigation measures that will identify, avoid, and reduce potential impacts to special-status species that may occur on the project site. Project implementation of Mitigation Measures BIO-1 through BIO-4 will reduce potential project-related impacts to a significant level. When considered with other proposed projects in the region, such as the proposed Monserate Winery on Gird Road which will be required to implement similar mitigation measures to comply with CEQA, the potential cumulative effects to special-status species will not be cumulatively considerable. Therefore, the proposed project will not contribute to a cumulatively considerable impact on special-status species.

Significance Determination: Potentially Significant

Mitigation Measures

Implementation of Mitigation Measures BIO-1 through BIO-4 is required.

Significance after Mitigation: Less than Significant

Riparian Habitat or Sensitive Natural Community

The project has been designed to avoid any riparian habitat or sensitive natural community on the project site. The only project impacts that will occur involve the removal of non-native and disturbed habitats that are only considered regionally sensitive. However, since the project does not need to comply with the MSCP, these vegetation communities are not considered sensitive and impacts to non-native grassland, disturbed habitat, and non-native woodlands are not considered significant. Additionally, no impacts will occur to riparian habitat or designated Critical Habitat. When considered with additional proposed project in the vicinity, the proposed project will not contribute to a cumulatively considerable impact, and therefore, is not considered cumulatively significant.

Federally Protected Wetlands

The proposed project has been designed to avoid any potential impact to the three unnamed ephemeral drainages on the project site and will not result in any significant impact to federally protected wetlands or Waters of the U.S. and State. Therefore, the project will not contribute to a cumulatively considerable affect to federally protected wetlands and there will be no cumulatively considerable impact as a result of construction of the proposed project.

Wildlife Corridors and Nursery Sites

Although the project site does not function as a significant wildlife corridor or linkage, the three ephemeral drainages onsite may facilitate the movement of wildlife towards the San Luis Rey River. The proposed project has been designed to avoid any impact to these drainage features and therefore, will not contribute to a cumulatively considerable impact to wildlife corridors and nursery sites.

Local Policies or Ordinances Protecting Biological Resources

The proposed project will be required to mitigate impacts to oak trees on the project site. Other projects in the vicinity of the proposed project will be required to either adhere to the County Municipal Code or the County of San Diego RPO if they occur and are complying with the County of San Diego MSCP. Therefore, the proposed project will not contribute to a cumulatively considerable effect to local policies protecting trees, and when combined with other projects in the vicinity will not result in a cumulatively considerable impact to local policies.

Conservation Plans

The project site occurs within the Draft North County Subarea Plan of the MSCP, which has not been approved, and therefore, the project will result in no impact to any local or regional conservation plans. When considered with other cumulative projects in the region, the proposed project will not contribute to a cumulatively considerable impact. Additionally, other development projects in the region that are not on Public Agency Lands will have to demonstrate compliance with the approved San Diego County MSCP.

3.4.8 References

California Department of Fish and Wildlife (CDFW), 2017. *California Natural Diversity Database (CNDDB) Commercial version, Rarefind 5 query results for Bonsall and surrounding USGS 7.5-minute quadrangles*. October 2017.

California Native Plant Society (CNPS), 2017. Inventory of Rare and Endangered Plants (online edition v8-01a). California Native Plant Society, Sacramento, CA. Available at: www.cnps.org, accessed October 2017.

County of San Diego, 1997. *Multiple Species Conservation Program. County of San Diego Subarea Plan*. October 1997.

Envira, 2017a. *Stephen's Kangaroo Rat and Pocket Mouse Phase One Assessment Bonsall High School*. 2017.

Envira, 2017b. *Stephens' Kangaroo Rat and Dulzura Pocket Mouse Presence/Absence Trapping Studies Bonsall High School San Diego County, California*. 2017.

Hernandez Environmental Services (HES), 2016. *Botanical Survey for Bonsall High School (Assessor's Parcel Number 124-340-34-00)*. June 2016.

HES, 2017a. *Oak Tree Survey for Bonsall High School (Assessor's Parcel Number 124-340-34-00)*. March 2017.

HES, 2017b. *Burrowing Owl Survey Report for the proposed Bonsall High School (Assessor's Parcel Numbers 124-340-34-00) located in San Diego County, California*. April 2017.

HES, 2017c. *Biological Resources Assessment: Bonsall High School (Assessor's Parcel Number 124-340-34-00)*. Updated October 2017.

Johnson, Angela, 2017. *45-Day Report—Presence/Absence Surveys for Least Bell's Vireo, Southwestern Willow Flycatcher, and Yellow-billed Cuckoo for Hernandez Environmental Services and Kidd Biological Inc for Bonsall Unified School District, San Diego County, California*. August 2017.

3.5 Cultural Resources

This section addresses the potential impacts of the project to cultural resources in the project vicinity in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines.* This section is based on the following sources: *Bonsall High School Project – Phase I Cultural Resources Assessment* prepared by ESA (Vader, 2017), and a paleontological database review conducted for the project by the San Diego Natural History Museum (SDNHM) (McComas, 2017), (**Appendix K**).

Cultural resources include prehistoric and historic sites, structures, districts, places, and landscapes, or any other physical evidence associated with human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious or any other reason. Under CEQA, paleontological resources, although not associated with past human activity, are grouped within cultural resources. For the purposes of this analysis, cultural resources may be categorized into the following groups: archaeological resources, historic resources (including architectural/engineering resources), contemporary Native American resources, human remains, and paleontological resources.

3.5.1 Environmental Setting

Natural Setting

The proposed project is located within the foothills of the Peninsular Mountain Range. The Peninsular Ranges province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California. The province varies in width from approximately 30 to 100 miles. In general, the province consists of rugged mountains underlain by volcanic and sedimentary rocks, and igneous rocks of the Southern California Batholith (granitic rocks that constitute the core of many mountain ranges in western North America and underlie large portions of southern California). The proposed project is located approximately 0.4 miles north of the San Luis Rey River and is characterized by a series of hills and drainage areas, which is surrounded by a predominance of low-density estate type residential subdivisions.

Prehistoric Setting

The chronology of coastal southern California is typically divided into three general time periods: the Early Holocene (11,000 to 8,000 Before Present [B.P.]), the Middle Holocene (8,000 to 4,000 B.P.), and the Late Holocene (4,000 B.P. to A.D. 1769). Within this timeframe, the archaeology of southern California is generally described in terms of cultural "complexes." A complex is a specific archaeological manifestation of a general mode of life, characterized archaeologically by particular technologies, artifacts, economic systems, trade relationships, burial practices, and other aspects of culture.

Early Holocene (11,000 to 8,000 B.P.)

While it is not certain when humans first came to California, their presence in southern California by about 11,000 B.P. has been well documented. At Daisy Cave, on San Miguel Island, cultural

materials have been radiocarbon dated to between 11,100 and 10,950 years B.P. (Byrd and Raab, 2007). On the mainland, radiocarbon evidence confirms occupation of the Orange County and San Diego County coast by about 9,000 B.P., primarily in lagoon and river valley locations (Gallegos 2002). In western Riverside County, few Early Holocene sites are known to exist. One exception is site CA-RIV-2798, which contains deposits dating to as early as 8,580 cal. B.P. (Grenda, 1997). During the Early Holocene, the climate of southern California became warmer and more arid and the human population, residing mainly in coastal or inland desert areas, began exploiting a wider range of plant and animal resources (Byrd and Raab, 2007).

The primary Early Holocene cultural complex in coastal southern California was the San Dieguito Complex, occurring between approximately 10,000 and 8,000 B.P. The people of the San Dieguito Complex inhabited the chaparral zones of southwestern California, exploiting the plant and animal resources of these ecological zones (Warren, 1967). Leaf-shaped and large-stemmed projectile points, scraping tools, and crescentics are typical of San Dieguito Complex material culture.

Middle Holocene (8,000 to 4,000 B.P.)

During the Middle Holocene, there is evidence for the processing of acorns for food and a shift toward a more generalized economy in coastal and inland southern California. The processing of plant foods, particularly acorns, increased, a wider variety of animals were hunted, and trade with neighboring regions intensified (Byrd and Raab, 2007).

The Middle Holocene La Jolla Complex (8,000–4,000 B.P.) is essentially a continuation of the San Dieguito Complex. La Jolla groups lived in chaparral zones or along the coast, often migrating between the two. Coastal settlement focused around the bays and estuaries of coastal Orange and San Diego Counties. La Jolla peoples produced large, coarse stone tools, but also produced well-made projectile points and milling slabs. The La Jolla Complex represents a period of population growth and increasing social complexity, and it was also during this time period that the first evidence of the exploitation of marine resources and the grinding of seeds for flour appears, as indicated by the abundance of millingstones in the archaeological record (Byrd and Raab, 2007).

Contemporary with the La Jolla Complex, the Pauma Complex has been defined at inland sites in San Diego and Riverside counties (True, 1958). The Pauma Complex is similar in technology to the La Jolla Complex; however, evidence of coastal subsistence is absent from the Pauma Complex sites (Moratto, 1984). The Pauma and La Jolla Complexes may either be indicative of separate inland and coastal groups with similar subsistence and technological adaptations, or, alternatively, may represent inland and coastal phases of one group's seasonal rounds. The latter hypothesis is supported by the lack of midden and deeply buried artifacts at Pauma sites, indicating that these sites may have been temporary camps for resource gathering and processing.

Late Holocene (4,000 B.P. to A.D. 1769)

During the Late Holocene, native populations of southern California were becoming less mobile and populations began to gather in small sedentary villages with satellite resource-gathering camps (Byrd and Raab, 2007). Evidence indicates that the overexploitation of larger, high-ranked

food resources may have led to a shift in subsistence towards a focus on acquiring greater amounts of smaller resources, such as shellfish and small-seeded plants (Byrd and Raab, 2007).

Around 1,000 B.P., there was an episode of sustained drought, known as the Medieval Climatic Anomaly (MCA). While the effects of this environmental change on prehistoric populations are still being debated, it did likely lead to changes in subsistence strategies in order to deal with the substantial stress on resources (Jones and Schwitalla, 2008). In coastal southern California, prior to the MCA but possibly accelerated by it, conditions became drier and many lagoons had been transformed to saltwater marshes. Because of this, populations abandoned coastal mesas and ridge tops to settle nearer to permanent freshwater resources (Gallegos 2002).

Trading reached its zenith during the Late Holocene, with asphaltum (tar), seashells and steatite being exchanged from southern California to the Great Basin. Major technological changes appeared as well, particularly with the advent of the bow and arrow, which largely replaced the use of the dart and atlatl (Byrd and Raab, 2007). Small projectile points, ceramics, including Tizon brownware pottery, and obsidian from Obsidian Butte (Imperial County), are all representative artifacts of the Late Holocene.

It has been postulated that as early as 3,500 B.P., a Takic-speaking people arrived in coastal Los Angeles and Orange counties, having migrated west from inland desert regions (Kroeber 1925; Sutton 2009; Warren 1967). By around 1,500 to 1,000 B.P., Takic language and cultures had spread to the south and inland to the east. These new arrivals, linguistically and culturally different from earlier coastal populations, may have brought new settlement and subsistence systems with them, along with other new cultural elements. This migration has been postulated as being a factor in several of the significant changes in material culture seen in the Late Holocene (such as the use of smaller projectile points and pottery), as well as the introduction of cremation as a burial practice.

The San Luis Rey culture (divided into San Luis Rey I [AD 1400 to 1750] and San Luis Rey II [AD 1750 to 1850]) represented the Late Period in southwestern Riverside County and northern San Diego County (Moratto, 1984). San Luis Rey I village sites contain manos (hand stones), metates (grinding slabs), bedrock mortars, shell artifacts, and triangular arrow points. In addition to these features, San Luis Rey II sites are characterized by the presence of pottery, pictographs, and the cremation of the dead (Moratto, 1984).

San Luis Rey settlement patterns in the upper San Luis Rey River drainage are typified by seasonally occupied lowland villages located in proximity to water sources, and highland villages occupied in the late summer and fall for acorn collection (True and Waugh 1982). The available information, stemming primarily from survey data, indicates that four primary site types existed within the region during the Late Period: field camps, resource procurement locations, residential bases, and villages (Mason, 1999). Resource procurement locations and field camps, the most common site types, contain a limited assemblage of artifacts and subsistence remains, primarily lithic debitage, some tools, fire affected rock, and small amounts of animal bones and charred seeds and nuts. This indicates that these types of sites were used primarily for focused activities and short-term occupancy.

Villages and residential bases, on the other hand, show evidence for long-term occupation by large groups of people. Villages were occupied year-round, while residential bases were occupied seasonally. Artifacts and features found at both villages and residential bases, including large amounts of faunal and botanical remains, numerous high-quality tools, fire-affected rock, and anthrosols, indicate a wide range of activities (Mason, 1999). Bedrock mortars point to the processing of seeds and acorns, and ceremonial activities are evidenced by the presence of pictographs, petroglyphs, and cupules within village sites.

Ethnographic Setting

Native Americans living in the project site at the time of Spanish contact are now known as the Luiseño, after the Mission San Luis Rey to which many of them were relocated. The language of the Luiseño people has been identified as belonging to the Cupan group of the Takic subfamily, which is part of the larger Uto-Aztecan language family (Bean and Shipek 1978). Luiseño territory was bordered by Agua Hedionda Creek on the south and Aliso Creek on the northwest, encompassed most of the drainage of the San Luis Rey River and the Santa Margarita River, and extended east as far as the San Jacinto Mountains (Kroeber, 1925). Today this area is located within northern San Diego, southern Orange, and Riverside Counties, and would have encompassed a diverse environment including lagoons and marshes, coastal areas, inland river valleys, foothills, and mountains. The neighbors of the Luiseño to the north and northwest were the Juaneño, Gabrielino, and Serrano; to the east were the Cahuilla and Cupeño; and to the south were the Kumeyaay.

The Luiseño subsisted on small game, coastal marine resources, and a wide variety of plant foods such as grass seeds and acorns. Luiseño houses were conical thatched reed, brush, or bark structures. The Luiseño inhabited permanent villages centered around patrilineal clans, with each village headed by a chief, or *not* (Kroeber 1925; Sparkman 1908). Seasonal camps associated with villages were also used. Each village or clan had an associated territory and hunting, collecting, and fishing areas. Villages were typically located in proximity to a food or water source, or in defensive locations, often near valley bottoms, streams, sheltered coves or canyons, or coastal strands (Bean and Shipek, 1978). It is estimated that there may have been around 50 Luiseño villages with a population of about 200 each at the time of the first Spanish contact (Bean and Shipek, 1978).

Today, there are six federally recognized tribes in California who share Luiseño tribal affiliation, language, and culture, including the La Jolla, Rincon, Pauma, Pechanga, Pala, and Soboba. The Pala Band of Mission Indians is the closest Native American group affiliated with the project site.

Historic Setting

Spanish Period (A.D. 1769-1821)

Although Spanish explorers made brief visits the region in 1542 and 1602, sustained contact with Europeans did not commence until the onset of the Spanish Period. In 1769 Gaspar de Portola led an expedition from San Diego to the San Francisco Bay (McCawley, 1996). This was followed in 1776 by the expedition of Father Francisco Garcés (Johnson and Earle, 1990). The first known European to set foot in the vicinity of present-day Bonsall was a Franciscan padre, Father Juan

Norberto de Santiago, who traveled into the region in October 1797 seeking a site to establish a new mission.

In the late 18th century, the Spanish began establishing missions in California and forcibly relocating and converting native peoples. Two missions were located in the vicinity of the project site including: Mission San Juan Capistrano, located approximately 30 miles northwest of the project and founded in 1776; and Mission San Luis Rey de Francia (San Luis Rey), located approximately 9 miles west of the project and founded in 1798. With the establishment of Mission San Luis Rey, the Spanish began forcibly relocating and converting the regional Luiseño population. Throughout California, the mission system took a toll on the native populations through disease and hard labor; by 1900, the Native Californian population had declined by over 90 percent (Cook, 1978). Furthermore, native economies were disrupted, trade routes were interrupted, and native ways of life were significantly altered by the mission system.

In an effort to promote Spanish settlement of Alta California, Spain granted several large land concessions from 1784 to 1821. At this time, unless certain requirements were met, Spain retained title to the land (State Lands Commission, 1982).

Mexican Period (A.D. 1821-1848)

The Mexican Period began when Mexico won its independence from Spain in 1821. Mexico continued to promote settlement of California with the issuance of land grants. In 1833, Mexico began the process of secularizing the missions, reclaiming the majority of mission lands and redistributing them as land grants. According to the terms of the Secularization Law of 1833 and Regulations of 1834, at least a portion of the lands would be returned to the Native populations, but this did not always occur (Milliken et al., 2009).

Many ranchos continued to be used for cattle grazing by settlers during the Mexican Period. Hides and tallow from cattle became a major export for Californios (native Hispanic Californians), many of whom became wealthy and prominent members of society. The Californios led generally easy lives, leaving the hard work to vaqueros (Hispanic cowhands) and Indian laborers (Pitt 1994; Starr, 2007).

American Period (A.D. 1848-present)

In 1846, the Mexican-American War broke out. Mexican forces were eventually defeated in 1847 and Mexico ceded California to the United States as part of the Treaty of Guadalupe Hildalgo in 1848. California officially became one of the United States in 1850. While the treaty recognized the right of Mexican citizens to retain ownership of land granted to them by Spanish or Mexican authorities, the claimant was required to prove their right to the land before a patent was given. The process was lengthy and generally resulted in the claimant losing at least a portion of their land to attorney's fees and other costs associated with proving ownership (Starr, 2007).

When the discovery of gold in northern California was announced in 1848, a huge influx of people from other parts of North America flooded into California. The increased population provided an additional outlet for the Californios' cattle. As demand increased, the price of beef skyrocketed and Californios reaped the benefits. However, a devastating flood in 1861, followed

by droughts in 1862 and 1864, led to a rapid decline of the cattle industry; over 70 percent of cattle perished during these droughts (McWilliams 1946; Dinkelspiel, 2008). This event, coupled with the burden of proving ownership of their lands, caused many Californios to lose their lands during this period (McWilliams, 1946). Former ranchos were subsequently subdivided and sold for agriculture and residential settlement.

The first transcontinental railroad was completed in 1869, connecting San Francisco with the eastern United States. Newcomers poured into northern California. Southern California experienced a trickle-down effect, as many of these newcomers made their way south. The Southern Pacific Railroad extended its line from San Francisco to Los Angeles in 1876. The second transcontinental line, the Santa Fe, was completed in 1886 and caused a fare war, driving fares to an unprecedented low. In 1880, construction began on the California Southern Railroad, which would eventually connect San Diego with the Santa Fe railroad line through the Cajon Pass, by way of Temecula (Brigandi, 2012). Settlers flooded into the region and the demand for real estate skyrocketed. The subdivision of the large ranchos took place during this time (Meyer 1981; McWilliams, 1946).

Brief History of the Proposed Project Vicinity

After the establishment of Mission San Luis Rey in 1897, Mexican and European ranchers began settling in the project vicinity, and in 1816 the *asistencia* San Antonio de Pala was founded 7.5 miles east of the project (Van Horn 1974). In 1846, the 13,322-acre, Mexican-era Monserate land grant, which encompasses the project, was granted to Ysidro Alvarado. During the American-era, Alvarado's ownership of the land was scrutinized by the U.S Land Commission and final approval of his title was not granted until 1870, seven years after Alvarado's death (Rivers 1998). Ownership of the Monserate lands was transferred to Alvarado's children: Tomas Alvarado, Dolores Alvarado de Serrano, and Lugarda Alvarado de Palomares. The land was divided into three 4,500-acre sections and distributed to Alvarado's heirs. The project is located within the section of Monserate that was given to Dolores Alvarado de Serrano and her husband (Rivers 1998). They built a home in the lower portion Live Oak Canyon – the canyon in which the project is located.

By the time the Alvarado heirs took possession of Monserate, Ysidro Alvarado's home had been rented to Simon Goldbaum and used as a store that supplied the needs of a growing number of homesteading families in the area (Rivers, 1998). A small community was established along the eastern edge of Rancho Monserate, and by the early 1870s there was both a Monserate school and post office. Later, a second community variously known as Mt. Fairview and Osgood was established to the west and in 1889 the town petitioned for a post office (Bonsall Chamber of Commerce, 2016). As part of the petition, three names for the growing community were recommended including Reed, Favorite, and Bonsall, with the latter name being chosen. Bonsall is named for James Bonsall, a retired Methodist minister who established a fruit nursery in the area in 1889 (Bonsall Chamber of Commerce, 2016). Bonsall remained largely rural with the surrounding areas being used for agricultural activities and by 1918 the population reached 100 (Bonsall Chamber of Commerce, 2016).

In the late 1800s, four local schools were present in the vicinity of Bonsall including the Mt. Fairview School, the Monserrate School, the River School and the Oaks School (Funk 1984). By 1895, 41 children were attending Bonsall schools and by 1919 the Bonsall Union School District was formed. In 1920, a school bond election for $18,500 passed and a new school building of Spanish style, consisting of an auditorium, stage, small kitchen, two classrooms, and a principal's office was built (Funk 1984). As the Bonsall area grew, additional classroom space was needed and the Bonsall Union School was established. The school was built in sections over a period of 29 years, beginning in 1954 when two classrooms, an office, and a teacher's lounge were constructed. As student registration increased so did the size of the school, and in 1984, 30 classrooms and two trailers were added (Funk, 1984).

3.5.2 Regulatory Setting

State

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at *Public Resources Code (PRC) Section 21000 et seq.* CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or unique archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. An archaeological resource may qualify as an "historical resource" under CEQA. The *CEQA Guidelines* (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the *CEQA Guidelines* apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (*CEQA Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is as a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility for the California Register are based upon the National Register of Historic Places (National Register) criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the local, state, and/or federal level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the California Office of Historic Preservation (OHP) and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 requires that in the event human remains are discovered, the County Coroner be contacted to determine the nature of the remains. In the event the remains are determined to be Native American in origin, the Coroner is required to contact the California Native American Heritage Commission (NAHC) within 24 hours to relinquish jurisdiction.

California Public Resources Code Section 5097.98

California PRC Section 5097.98, as amended by AB 2641, provides procedures in the event human remains of Native American origin are discovered during project implementation. PRC Section 5097.98 requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery is adequately protected according to generally accepted cultural and archaeological standards, and that further activities take into account the possibility of multiple burials. PRC Section 5097.98 further requires the NAHC, upon notification by a County Coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. Once the MLD has been granted access to the site by the landowner

and inspected the discovery, the MLD then has 48 hours to provide recommendations to the landowner for the treatment of the human remains and any associated grave goods.

In the event that no descendant is identified, or the descendant fails to make a recommendation for disposition, or if the land owner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that will not be subject to further disturbance.

Paleontological Resources

Federal

A variety of federal statutes specifically address paleontological resources. They are generally applicable to a project if that project includes federally owned or federally managed lands or involves a federal agency license, permit, approval, or funding. Federal legislative protection for paleontological resources stems from the Antiquities Act of 1906 (PL 59-209; 16 United States Code 431 et. seq.; 34 Stat. 225), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal lands.

State

Paleontological resources are also afforded protection by CEQA. Appendix G (Part V) of the CEQA Guidelines provides guidance relative to significant impacts on paleontological resources, stating that a project will normally result in a significant impact on the environment if it will "…disrupt or adversely affect a paleontologic resource or site or unique geologic feature, except as part of a scientific study." PRC Section 5097.5 specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for the damage or removal of paleontological resources.

Professional Standards

The Society for Vertebrate Paleontology (SVP) has established standard guidelines for acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional paleontologists in the nation adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most California State regulatory agencies accept the SVP standard guidelines as a measure of professional practice.

3.5.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to Cultural Resources if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 (see Impact 3.5-1, below);
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 (see Impact 3.5-2, below);

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature (see Impact 3.5-3, below); or
- Disturb any human remains, including those interred outside of dedicated cemeteries (see Impact 3.5-4, below).

CEQA provides that a project may cause a significant environmental effect where the project could result in a substantial adverse change in the significance of a historical resource (Public Resources Code, Section 21084.1). CEQA Guidelines Section 15064.5 defines a "substantial adverse change" in the significance of a historical resource to mean physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be "materially impaired" (CEQA Guidelines Section 15064.5(b)(1)). Per CEQA Guidelines Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.
- CEQA also provides that a project may cause a significant environmental effect where the project could result in damage to or destroy unique archaeological resources, unique paleontological resource or site or unique geologic feature, or human remains. Typically, impacts to unique archaeological resources can be mitigated to less-than-significant level through data recovery excavations. CEQA provides that excavation as mitigation shall be limited to those parts of the unique archaeological resource that would be damaged or destroyed by the project (Public Resources Code Section 21083.2(d)) and sets limits on the dollar amount required of an applicant to mitigate impacts (Public Resources Code Section 21083.2(e)). Under CEQA, documentation and recovery of the scientific information contained in "significant" fossils (i.e., fossils that are unique, unusual, rare, uncommon, or diagnostically important) is considered to reduce the impact to paleontological resources to less than significant. CEQA Guidelines Section 15064.5(e) indicates that in the event of human remains discoveries, the county coroner shall be contacted and the provisions of Public Resources Code Section 5097.98 shall be followed to mitigate impacts.

3.5.4 Methodology

To evaluate the proposed project's potential effects on significant cultural resources, a cultural resources assessment of the project site was conducted, which included a records conducted at the California Historical Resources Information System (CHRIS) South Coast Information Center (SCIC), a review of historic maps and aerial photographs, a Sacred Lands File (SLF) conducted by

the NAHC, and a pedestrian survey (Vader, 2017). The methodology and results of the cultural resources assessment, as well as the paleontological resources records search conducted by the SDNHM, are summarized below.

SCIC Records Search

A records search for the proposed project was conducted on February 10, 2017 at the SCIC housed at San Diego State University. The records search included a review of all previous studies and previously recorded cultural resources within a ¼-mile radius of the proposed project.

The records search results indicate that 25 cultural resources studies have been conducted within a ½-mile radius of the project site. Approximately 66 percent of the ½-mile records search radius has been included in previous cultural resources surveys. Of the 25 previous studies, three (SD-00146, -05109, and -10707) overlap the project site. The most recent of these three studies was prepared in 2006 by EDAW (Shalom and Tuthill, 2006). The study included a pedestrian survey of the entire project site. Dense grasses and standing water obscured much of the ground surface during EDAW's survey and no cultural resources were identified (Shalom and Tuthill, 2006).

The records search results indicate that seven cultural resource resources have been previously recorded within a ½-mile radius of the project site, none of which are within the project site (**Table 3.5-1**). Of the previously recorded resources, five are prehistoric archaeological sites (CA-SDI-681/5589, -1284, -4543, -17736, and -19442), one is a historic architectural resource (3640 Gird Road – residence), and one is a historic linear resource (P-37-028136 – Gird Road). Resource P-37-028136 (Gird Road) bounds the eastern portion of the project site and is located within 10 feet of the project.

TABLE 3.5-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN ½ MILE OF THE PROJECT SITE

Primary # (P-37-)	Permanent Trinomial (CA-SDI-)	Other Identifier	Description	Year Recorded
000681/005589	681/5589	-	Prehistoric archaeological site: bedrock milling features and midden soil	1978
001284	1284		Prehistoric archaeological site: bedrock milling feature	1971
004543	4543	-	Prehistoric archaeological site: burnt shell fragments	2008
027117	17736	-	Prehistoric archaeological site: rock art panel	2005
028136	-	-	Historic linear resource: segment of Gird Road	2006
030592	19442	-	Prehistoric archaeological site: bedrock milling feature	2008
-	-	3640 Gird Road	Historic architectural resource: residence constructed in 1914	1996

Resource P-37-028136 (Gird Road)

This resource consists of a historic-period linear resource comprised of a segment of Gird Road. A segment of the road located approximately 0.19 mile south of the project was originally recorded in 2006 and is was described as a paved two-lane road, which was constructed prior to 1901 and connected Fallbrook to the San Luis River Valley (Gregory and Bowden-Renna, 2006). The road has not been previously evaluated for listing in the California Register; however, because the road has been paved and realigned since its original construction, Gregory and Bowden-Renna (2006) indicated that its integrity is poor and it no longer retains the essential features that would convey its historic identity. The road is located approximately 10 feet east of the project's eastern boundary.

Historic Map and Aerial Review

Historic maps and aerial photographs were examined to provide historical information about the project site and to contribute to an assessment of the project site's archaeological sensitivity. Available maps include the 1901 San Luis Rey 30-minute topographic quadrangle, and the 1948 and 1968 Bonsall 7.5-minute topographic quadrangles. Historic aerial photographs of the project site were available for the years 1938, 1946, 1953, 1967, 1981, 1989, 1995, 2002 and 2003 (historicaerials.com, 2017). Additionally, Google Earth aerial imagery from 1995 through 2016 was reviewed.

Available historic maps and aerial photographs indicate that the project vicinity was largely rural until the 1990s when it was subdivided and developed for residential purposes. The 1901 topographic map depicts the San Luis Rey River approximately 0.50 miles south of the project, as well as two structures approximately 0.30-mile north of the project site. The 1901 map also shows a north-south oriented dirt road located along the western margin of the project site, running north from the San Luis Rey River Valley to Fallbrook and beyond. A cluster of structures along the San Luis Rey River representing the town of Bonsall are located approximately 2.8 miles south of the project on the 1901 map. In 1948 and 1968, the structures depicted on the 1901 map are still present; the north-south oriented road has been paved and is labeled Live Oak Park Road; Highway 395 appears approximately 2 miles east of the project; and the east-west oriented Pala Road appears 0.36-mile south of the project area on the north side of the San Luis Rey River.

Historic aerial imagery confirms that the project vicinity was largely rural until the 1990s. On the 1938 and 1946 aerial photographs, the project site appears to consist of undulating hills covered in grasses with a seasonal drainage to the northeast. A north-south oriented road skirts the eastern margin of the project site, and a faint dirt road bisects the southwest corner on both the 1938 and 1946 aerial photos. There are structures that may be related to two farms approximately 0.25 miles to the north and northeast of the project site. Little appears to have changed between 1946 and 1953, although there is a stock pond indicating cattle grazing located approximately 300 feet west of the southwest corner of the project, and a north-south oriented dirt road bisects the project's western margin. By 1981, there are a number of orchards on the hill slopes approximately 0.20 miles west of the project, and by 1989, there is a residential subdivision 330 feet northeast of the project site's northeast corner. By 1995, residential subdivisions and a golf

course appear around the project site, and by 2003, it is completely surrounded by development. The northeastern portion of the project appears to have been graded sometime after 1995, and sometime between 2003 and 2008, a number of graded dirt roads and debris piles appear within the project site.

In sum, the historic map and aerial imagery review indicates that the project vicinity was largely rural and undeveloped until the 1990s when residential subdivisions and a golf course were constructed. By 2003, the project site was completely surrounded by development; however, with the exception of some minor dirt roadways, the project site has never been developed, though it was likely subject to cattle grazing.

Cultural Resources Survey

A Phase I cultural resources survey of the project site was conducted on February 15, 2017. The survey was aimed at identifying surface evidence of archaeological resources in the project site and built environment resources within or immediately adjacent to the project site. The entire project was subject to a systematic pedestrian survey using transect intervals spaced no more than 10 meters (approximately 30 feet) apart. All identified resources meeting the OHP's 45-year-old threshold were documented/updated on California Department of Parks (DPR) 523 forms.

The project site consists of undeveloped/unpaved land characterized by rolling hills punctuated by small stands of oak and eucalyptus trees. The ground surface was largely covered with knee to waist-high non-native grasses, which reduced ground surface visibility to 0-15 percent throughout much of the project site. Within the stands of oak and eucalyptus, grasses were not quite as thick; however, leaf litter reduced ground surface visibility to 25-30 percent. A number of debris piles consisting of large chunks of concrete with rebar, as well as asphalt were noted in the northeastern and east-central portions of the project site. One debris pile was located within a shallow depression that appears to have been graded. The debris piles and depression date to between 2003 and 2008, as indicated by a review of aerial imagery, and do not meet the OHP's 45-year age threshold for recordation.

One previously recorded resource, P-37-028136 (Gird Road), was identified as a result of the survey. An approximate 0.34-mile long segment of the resource is located approximately 10 feet east of the project site and was documented on a DPR 523 update form. The newly documented segment is consistent with the previous description: a two-lane, paved road, measuring approximately 30 feet wide.

Paleontological Resources Records Search

The paleontological records search conducted by the SDNHM on February 7, 2017 identified two geologic units which underlie the project site: Holocene-age (less than 10,000 years old) alluvial deposits; and Pleistocene-age (10,000 to 2.6 million years old) old alluvial flood plain deposits (McComas, 2017). The Holocene-age alluvial deposits are found within modern canyons and along floodplains, and are mapped as occurring along Gird Road adjacent to the project. No fossil localities have been previously identified within these deposits in the

vicinity of the project. Given the young age of these deposits, they are unlikely to contain fossil localities and have been assigned a low paleontological sensitivity.

Pleistocene-age alluvial flood plain deposits are mapped as underlying much of the project site. These deposits are fluvial in nature and were deposited by the ancestral San Luis Rey River during the Pleistocene. A number of fossil localities originating from these Pleistocene deposits have been identified approximately 2 miles west of the project site. These fossil localities produced fossilized impressions of plants, and terrestrial vertebrates including salamanders, lizards, snakes, bats, rodents, rabbits, and bovids. The most notable fossil locality identified consists of a nearly complete skull and associated partially articulated skeleton belonging to a giant bison (*Bison latifrons*) (SDNHM locality 6685), the first of its kind documented within San Diego County. Given the age of these deposits and the likelihood of encountering fossil specimens, they have been assigned a high paleontological sensitivity.

3.5.5 Impact Analysis

Historical Resources

Impact 3.5-1: The project could cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.

No cultural resources were identified within the project site as a result of the cultural resources study prepared for the project (presented at **Appendix K)**. One previously recorded cultural resource, P-37-028136 (Gird Road), is located adjacent (approximately 10 feet) to the project site. The road has not been previously evaluated for listing in the California Register; however, because the road has been paved and realigned since its original construction, Gregory and Bowden-Renna (2006) indicate that the integrity of the road is poor and it no longer retains the essential features that would convey its historic identity. Gird Road would be used to access the site during proposed project construction, but would not be re-paved, re-aligned, or otherwise altered as part of the proposed project, and the project would not impact the resource.

Although no cultural resources were identified within the project site, this does not preclude the possibility that unknown cultural resources are present. Much of the ground surface within the project was obscured by knee to waist-high grasses, which reduced ground surface visibility to 0-30 percent. Given the poor ground surface visibility, it is possible that unknown cultural resources are present within the project site but are obscured by ground cover and could not be identified during the current survey or previous surveys. Additionally, the records search indicated five prehistoric archaeological sites have been previously documented within ½-mile of the project site. Given the number of previously recorded prehistoric archaeological sites as well as the project's proximity to the San Luis Rey River, which would have attracted indigenous groups throughout prehistory, the project site is considered sensitive for the presence of prehistoric archaeological resources and proposed project-related ground disturbing activities have the potential to impact previously unidentified archaeological resources that could qualify as historical resources pursuant to CEQA.

Significance Determination: Potentially Significant

Mitigation Measures

Implementation of the following mitigation measures is required:

CUL-1: Prior to the start of ground-disturbing activities, Bonsall USD shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (U.S. Department of the Interior 2008) to carry out Mitigation Measures CUL-2 through CUL-4.

CUL-2: Prior to start of ground-disturbing activities, the qualified archaeologist shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, and safety precautions to be taken when working with archaeological monitors. Bonsall USD shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

CUL-3: An archaeological monitor (working under the direct supervision of the qualified archaeologist) shall observe all initial ground-disturbing activities, including but not limited to brush clearance, vegetation removal, grubbing, grading, and excavation. The qualified archaeologist, in coordination with Bonsall USD, may reduce or discontinue monitoring if it is determined that the possibility of encountering buried archaeological deposits is low based on observations of soil stratigraphy or other factors. Archaeological monitoring shall be conducted by an archaeologist familiar with the types of archaeological resources that could be encountered within the project site. The archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of a discovery until the qualified archaeologist has evaluated the discovery and determined appropriate treatment (as prescribed in Mitigation Measure CUL-4). The archaeological monitor shall keep daily logs detailing the types of activities and soils observed, and any discoveries. After monitoring has been completed, the qualified archaeologist shall prepare a monitoring report that details the results of the monitoring. The report shall be submitted to Bonsall USD and any Native American groups who request a copy. A copy of the final report shall be filed at the South Coast Information Center.

CUL-4: In the event of the unanticipated discovery of archaeological materials, the contractor shall immediately cease all work activities in the area (within approximately 100 feet) of the discovery until it can be evaluated by the qualified archaeologist. Construction shall not resume until the qualified archaeologist has conferred with Bonsall USD on the significance of the resource.

If it is determined that the discovered archaeological resource constitutes a historical resource or unique archaeological resource pursuant to CEQA,

avoidance and preservation in place shall be the preferred manner of mitigation. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological Resources Treatment Plan shall be prepared and implemented by the qualified archaeologist in consultation with Bonsall USD that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. Bonsall USD shall consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resource, beyond that which is scientifically important, are considered.

Significance after Mitigation: Implementation of Mitigation Measures CUL-1 through CUL-4 would reduce impacts to potential archaeological resources that could qualify as historical resources to less than significant.

Archaeological Resources

Impact 3.5-2: The project could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.

As noted above, no archaeological resources were identified within the project site as a result of the cultural resources study (presented at Appendix K**)**. However, given the poor ground surface visibility within the project site and the sensitivity for the presence of prehistoric resources, there exists the possibility that proposed project-related ground disturbing activities have the potential to impact previously unidentified archaeological resources that could qualify as unique archaeological resources pursuant to CEQA.

Significance Determination: Potentially Significant

Mitigation Measures

Implementation of Mitigation Measures CUL-1 through CUL-4 is required.

Significance after Mitigation: Implementation of Mitigation Measures CUL-1 through CUL-4 would reduce impacts to potential archaeological resources, that could qualify as historical resources, to less than significant.

Paleontological Resources

Impact 3.5-3: The project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

The paleontological records search prepared the SDNHM states that much of the project site is underlain by Pleistocene old alluvial floodplain deposits, which have produced a number of fossil localities approximately 2 miles west of the project. These deposits have a high sensitivity for the presence of paleontological resources. As such, proposed project ground disturbing activities have the potential to impact paleontological resources or unique geologic features pursuant to CEQA.

Significance Determination: Potentially Significant

Mitigation Measures

Implementation of the following mitigation measures is required:

CUL-5: Prior to the start of ground-disturbing activities, Bonsall USD shall retain a qualified paleontologist meeting the standards of the Society for Vertebrate Paleontology (SVP, 2010). The qualified paleontologist shall review all design plans and geotechnical investigations related to the proposed project in order to ascertain where excavation will could impact highly sensitive sediments.

CUL-6: The qualified paleontologist shall also contribute to any construction worker cultural resources sensitivity training, outlined in Mitigation Measure CUL-2, either in person or via a training module provided to the qualified archaeologist. The training session shall focus on the recognition of the types of paleontological resources that could be encountered within the project site and the procedures to be followed if they are found.

CUL-7: Full-time paleontological resource monitoring shall be conducted of all ground disturbance in areas identified as highly sensitive by the qualified paleontologist. Paleontological resource monitoring shall be performed by qualified paleontological monitors and/or cross-trained archaeological/paleontological monitors under the direction of the qualified paleontologist. Monitors shall have the authority to temporarily halt or divert work away from exposed fossils in order to recover the fossil specimens. The qualified paleontologist, based on observations of subsurface soil stratigraphy or other factors, may reduce or discontinue monitoring as warranted if the qualified paleontologist determines that the possibility of encountering fossiliferous deposits is low. If fossils are unearthed during construction at a shallower depth than 5 feet, the monitoring program shall be adjusted accordingly. The paleontological monitor shall keep daily logs detailing the types of activities and sediments observed, and any discoveries. The qualified paleontologist shall prepare a final monitoring and mitigation report to be submitted to Bonsall USD.

CUL-8: In the event of the discovery of paleontological resources, the contractor shall immediately cease all work activities within 50 feet of the discovery, and Bonsall USD shall be contacted immediately. The qualified paleontologist shall evaluate the significance of the find and if it is determined that the discovery constitutes a significant resource under CEQA, a Paleontological Resources Treatment Plan

shall be prepared and implemented by the qualified paleontologist in consultation with Bonsall USD. Paleontological materials recovered during any investigation shall be curated at an accredited curational facility. The report(s) documenting the implementation of the Paleontological Resources Treatment Plan shall be submitted to Bonsall USD.

Significance after Mitigation: Implementation of Mitigation Measures CUL-5 through CUL-8 would reduce potential impact to paleontological resources or unique geologic features to less than significant.

Human Remains

Impact 3.5-4: The project could disturb any human remains, including those interred outside of dedicated cemeteries.

No known human remains exist within the proposed project vicinity. However, because the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains.

Significance Determination: Potentially Significant

Mitigation Measures

Implementation of the following mitigation measure is required:

CUL-9: If human remains are encountered, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the San Diego County Coroner has made the necessary findings as to origin. Further, pursuant to PRC Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the San Diego County Coroner determines the remains to be Native American, the California Native American Heritage Commission must be contacted within 24 hours. The California Native American Heritage Commission must then immediately identify the Most Likely Descendent upon receiving notification of the discovery. The Most Likely Descendent shall then make recommendations within 48 hours of being granted access and engage in consultation concerning the treatment of the remains as provided in PRC Section 5097.98.

Significance after Mitigation: Implementation of Mitigation Measure CUL-9 would ensure that impacts would be less than significant.

3.5.6 Cumulative Impact Analysis

Historical and Archaeological Resources

The geographic scope for cumulative impacts on archaeological resources includes all recorded and unrecorded resources within the District boundary where Native American and historic-era archaeological sites have been located. Future development assumed within this geographic area

includes buildout of the unincorporated San Diego County. Development of the project would contribute to cumulative impacts on archaeological resources if the project and other projects in the area were to adversely affect such resources.

Past urban development that has occurred in the area may have resulted in damage and destruction of archaeological resources. For this reason, the cumulative effects of development to archaeological resources are considered significant. However, CEQA requires that development projects identify the potential for known archaeological resource impacts and further requires that those impacts are mitigated (CEQA § 21083.2 and CEQA *Guidelines* § 15064.5). While there exists the potential to encounter previously unrecorded archaeological resources, mitigation measures are typically included in environmental documents to prescribe what must occur in the event of an unanticipated discovery to reduce impacts to a less-than-significant level.

As discussed in Impact 3.5-2, no archaeological resources have been identified within the project site. However, project-related ground disturbing activities have the potential to impact previously unidentified archaeological resources that could qualify as unique archaeological resources pursuant to CEQA. The potential to encounter previously unrecorded resources would be reduced to a less-than-significant level with implementation of Mitigation Measures CUL-1 through CUL-4. These measures require the District to halt work if any potential resources are discovered during construction. If it is determined that an archaeological resource may be present within the project site, the District is required to retain the services of a qualified archaeological consultant to evaluate the find. Implementation of this measure would effectively avoid damage to or loss of resources, and little to no residual impact would remain after mitigation. With implementation of this mitigation measure, the proposed project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with historical and archaeological resources, and the project's cumulative impact would be less than significant.

Significant Determination: Potentially Significant

Mitigation Measures

Implementation Mitigation Measures CUL-1 through CUL-4 is required.

Significance after Mitigation: Less than Significant

Paleontological Resources

The geographic scope for cumulative impacts on paleontological resources includes all recorded and unrecorded resources within the District boundary where paleontological resources have been previously identified. Future development assumed within this geographic area includes buildout of the unincorporated San Diego County. Development of the project would contribute to cumulative impacts on archaeological resources if the project and other projects in the area were to adversely affect such resources.

Past urban development that has occurred in the area may have resulted in damage and destruction of paleontological resources. For this reason, the cumulative effects of development to paleontological resources are considered significant. However, any unauthorized removal or destruction of paleontological resources on sites located on public lands is a misdemeanor (PRC

Section 5097.5). While there exists the potential to encounter previously unrecorded paleontological resources, mitigation measures are typically included in environmental documents to prescribe what must occur in the event of an unanticipated discovery to reduce impacts to a less-than-significant level.

As discussed in Impact 3.5-3, deposits within the project site have a high sensitivity for the presence of paleontological resources. Project-related ground disturbing activities have the potential to impact previously unidentified paleontological resources that could qualify as unique paleontological resources pursuant to CEQA. The potential to encounter previously unrecorded resources would be reduced to a less-than-significant level with implementation of Mitigation Measures CUL-5 through CUL-8. These measures require the District to halt work if any potential resources are discovered during construction. If it is determined that a paleontological resource may be present within the project site, the District is required to retain the services of a qualified paleontologist consultant to evaluate the find. Implementation of this measure would effectively avoid damage to or loss of resources, and little to no residual impact would remain after mitigation. With implementation of this mitigation measure, the proposed project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with paleontological resources, and the project's cumulative impact would be less than significant.

Significant Determination: Potentially Significant

Mitigation Measures

Implementation of Mitigation Measures CUL-5 through CUL-8.

Significance after Mitigation: Less than Significant

Human Remains

No known human remains exist within the proposed project vicinity. However, because the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains. With the implementation of Mitigation Measure 3.5-9, the proposed project would not have a considerable cumulative contribution to impacts to unknown human remains.

Mitigation Measure

Implementation of Mitigation Measure CUL-9 is required.

Significance after Mitigation: Less than Significant

3.5.7 References

Bean, Lowell John, and Florence C. Shipek, 1978. Luiseño. In *California*. Edited by Robert F. Heizer, pp. 550-563. Handbook of North American Indians, Vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Bonsall Chamber of Commerce, 2016. History of Bonsall. Available at: https://bonsallchamber.wildapricot.org/History-of-Bonsall, accessed February 8, 2017.

Brigandi, Phil, 2012. A Short History of Temecula. Available at: http://www.temeculahistoricalsociety.org/temeculahistory.html, accessed June 18, 2012.

Byrd, Brian F., and L. Mark Raab, 2007. Prehistory of the Southern Bight: Models for a New Millennium. *California Prehistory: Colonization, Culture, and Complexity*. Edited by Terry L. Jones and Kathryn A. Klar, pp 215-227.

Cook, Sherburne F, 1978. Historical Demography. In *California*. Edited by Robert F. Heizer, pp. 91-98. Handbook of North American Indians, Vol. 8, W. C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Dinkelspiel, Frances, 2008. *Towers of Gold*. St. Martin's Press, New York.

Funk, Virginia, 1984. The History of Bonsall Schools. Available at: http://www.bonsallusd.com/apps/pages/index.jsp?uREC_ID=231187&type=d&pREC_ID=528101, accessed February 8, 2017.

Gallegos, Dennis, 2002. Southern California in Transition: Late Holocene Occupation of Southern San Diego County. In *Catalysts to Complexity: Late Holocene Societies on the California Coast*. Edited by Jon M. Erlandson and Terry L. Jones, pp 27-40. Perspectives in California Archaeology Vol. 6, Cotsen Institute of Archaeology, University of California, Los Angeles.

Gregory, C. and C. Bowden-Renna, 2006. *Primary Record for Resource P-37-028136*. On file at the South Coast Information Center, San Diego State University.

Grenda, Donn, 1997. *Continuity and Change: 8,500 Years of Lacustrine Adaptation on the Shores of Lake Elsinore.* Statistical Research Inc. (SRI) Technical Series 59, SRI, Tucson, Arizona.

Historicaerials.com. 2017. *Historic Aerial Photographs from 1938, 1946, 1953, 1967, 1981, 1989, 1995, 2002 and 2003*. Accessed at: http://www.historicaerials.com/. February 9, 2017.

Johnson, John R. and David D. Earle, 1990. Tataviam Geography and Ethnohistory. In *Journal of California and Great Basin Anthropology*, Volume 12, Number 2, pp. 191-214, 1990.

Jones, T. L., and Schwitalla, A, 2008. Archaeological perspectives on the effects of medieval drought in prehistoric California. *Quaternary International* 188:41–58.

Kroeber, A. L, 1925. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletins, No. 78. Smithsonian Institution: Washington, D.C.

Mason, Roger D, 1999. *Results of Archaeological Test Programs at CA-RIV-1022, CA-RIV-3331, and CA-RIV-3332H, Cottonwood Hills Project Area, City of Lake Elsinore, Riverside County, CA.* Prepared by Chambers Group.

McCawley, W, 1996. *The First Angelinos: The Gabrielino Indians of Los Angeles*. Malki Museum Press, Banning, California

McComas, Katie, 2017. *Paleontological Record Search – Bonsall High School Project*. Letter report prepared for Environmental Science Associates by the San Diego Natural History Museum.

McWilliams, Carey, 1949. *Southern California: An Island on the Land*. Gibbs Smith, Layton, Utah, 1949.

Meyer, L, 1981. *Los Angeles, 1781-1981: A special bicentennial issue of California history, Spring 1981*.California Historical Society, Los Angeles.

Milliken, Randall, Laurence H. Shoup, and Beverly R. Ortiz, 2009. *Ohlone/Costanoan Indians of the San Francisco Peninsula and their Neighbors, Yesterday and Today*. Prepared by Archaeological and Historical Consultants, Oakland, California for National Park Service Golden Gate National Recreation Area, San Francisco, California.

Moratto, M. J., 1984. *California Archaeology*. Smithsonian Press: San Diego, CA.

Pitt, Leonard, 1994. *The Decline of the Californios: A Social History of the Spanish-speaking Californians, 1846-1890*, University of California Press, Berkeley.

Rivers, Don, 1998. *Division of Rancho Monserate*. Available at: http://tchester.org/znet/fallbrook/history/memories/rancho_monserate_division.html. February 8, 2016.

Shalom, Diane, and Collin Tuthill, 2006. *Cultural Resources Survey for the San Luis Rey River Park Master Plan San Diego, California*. Prepared for the County of San Diego by EDAW Inc.

Society for Vertebrate Paleontology (SVP), 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. Available at: http://vertpaleo.org/PDFS/8f/8fe02e8f-11a9-43b7-9953-cdcfaf4d69e3.pdf. September 30, 2014.

Sparkman, Philip Stedman, 1908. *The Culture of the Luiseño Indians.* University of California Publications in American Archaeology and Ethnology 8(4).

Starr, Kevin, 2007. *California: A History*, Modern Library.

State Lands Commission. 1982. Grants of Land in California Made by Spanish or Mexican Authorities. Available at: www.slc.ca.gov/reports/grants_of_land/part_1.pdf. February 8, 2012.

Sutton, Mark, 2009. People and Language: Defining the Takic Expansion into Southern California. *Pacific Coast Archaeological Society Quarterly* 41(2/3):32-92, 2006. Printed September 2009.

True, Delbert L, 1958. An Early Complex in San Diego County, California. *American Antiquity*, 23(3):225-263.

True, Delbert L., and Georgie Waugh, 1982. Proposed Settlements Shifts during San Luis Rey Times: Northern San Diego County, California. *Journal of California and Great Basin Anthropology* 4(1):34-54.

U.S. Department of the Interior, National Park Service, 2002. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation.* National Park Service, Washington, D.C.

———, 2008.*Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (As Amended and Annotated).* Available at: www.nps.gov/history/local-law/arch_stnds_0.htm. November 4, 2014, 2008.

U.S. Geological Survey (USGS), 1901. *Topographic map of the San Luis Rey 30-minute quadrangle*. San Diego and Riverside Counties, California. USGS, Boulder.

———, 1948. *Topographic map of the Bonsall 7.5-minute quadrangle*. San Diego County, California. USGS, Boulder

———, 1968. *Topographic map of the Bonsall, 7.5-minute quadrangle*. San Diego County, California. USGS, Boulder.

Vader, Michael, 2017. *Bonsall High School Project Phase 1 Cultural Resources Assessment*. Prepared for Bonsall Unified School District by Environmental Science Associates.

Van Horn, Kurt, 1974. Tempting Temecula: The Making and Unmaking of a Southern California Community. *Journal of San Diego History* 20(1), 1974. Available at: http://www.sandiegohistory.org/journal/74winter/temecula.htm. June 18, 2012.

Warren, C.N., 1967. The San Dieguito Complex: A Review and Hypothesis. *American Antiquity,* 32 (2): 168-18.

3.6 Energy

This section evaluates potential impacts related to energy use by construction and operation of the proposed project. The analysis addresses consistency with adopted energy conservation plans, state and/or federal energy standards, the potential for wasteful, inefficient, and unnecessary consumption of energy, and demand on available supply or distribution infrastructure capabilities.

Section 21100(b) of the state CEQA Guidelines requires that an EIR include a detailed statement setting forth mitigation measures proposed to minimize a project's significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy. Appendix F of the state CEQA Guidelines states that, in order to ensure that energy implications are considered in project decisions, the potential energy implications of a project shall be considered in an EIR, to the extent relevant and applicable to the project. Appendix F further states that a project's energy consumption and proposed conservation measures may be addressed, as relevant and applicable, throughout this document.

In accordance with Appendix F of the state CEQA Guidelines, which requires an EIR to include a discussion of the potential energy impacts of a proposed project with an emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy, this Draft EIR includes relevant information and analyses that address the energy implications of the project. This section represents a summary of the project's anticipated energy needs, impacts, and conservation measures. Information found herein, as well as other aspects of the project's energy implications, are discussed in greater detail elsewhere in this Draft EIR, including Section 3.8, Greenhouse Gas Emissions of this Draft EIR.

3.6.1 Environmental Setting

Existing Conditions

The project site is currently vacant undeveloped land and does not currently contribute to regional energy demand. The project site would be served by San Diego Gas & Electric (SDG&E) for electricity and natural gas.

3.6.2 Regulatory Setting

State

Senate Bill 1389

Senate Bill (SB) 1389, codified in Public Resources Code Sections 25300-25323, requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code Section 25301[a]). The 2015 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California including energy efficiency, strategies related to data for

improved decisions in the Existing Buildings Energy Efficiency Action Plan, building energy efficiency standards, the impact of drought on California's energy system, achieving 50 percent renewables by 2030, the California Energy Demand Forecast, the Natural Gas Outlook, the Transportation Energy Demand Forecast, Alternative and Renewable Fuel and Vehicle Technology Program benefits updates, update on electricity infrastructure in Southern California, an update on trends in California's sources of crude oil, an update on California's nuclear plants, and other energy issues.

Senate Bill 1078 (Chapter 513, Statutes of 2002) and Senate Bill 107 (Chapter 464, Statutes of 2006) and Executive Order S-14-08

The state of California has adopted standards to increase the percentage that retail sellers of electricity, including investor-owned utilities and community choice aggregators, must provide from renewable sources. The standards are referred to as the Renewables Portfolio Standard and require 33 percent by 2020 and 50 percent by 2040. Refer to Section 3.8, Greenhouse Gas Emissions, for details regarding this regulation.

Title 24, Building Standards Code and California Green Building Standards Code

The CEC first adopted the Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the state. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods. The California Building Standards Commission (CBSC) adopted Part 11 of the Title 24 Building Energy Efficiency Standards, referred to as the California Green Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices. Although the CALGreen Code was adopted as part of the state's efforts to reduce GHG emissions, the standards have co-benefits of reducing energy consumption from residential and nonresidential buildings subject to the standard. Refer to Section 3.8, Greenhouse Gas Emissions, for additional details regarding these standards.

California Assembly Bill No. 1493 (Chapter 200, Statutes of 2002)

In response to the transportation sector accounting for more than half of California's carbon dioxide (CO_2) emissions, Assembly Bill (AB) 1493 (Chapter 200, Statutes of 2002), enacted on July 22, 2002, required CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is non-commercial personal transportation manufactured in and after 2009. Refer to Section 3.8, Greenhouse Gas Emissions, for details regarding this regulation.

Senate Bill 375 (Chapter 728, Statutes of 2008)

SB 375 establishes mechanisms for the development of regional targets for reducing passenger vehicle greenhouse gas emissions and was adopted by the State on September 30, 2008. Under SB 375, the target must be incorporated within that region's Regional Transportation Plan (RTP),

which is used for long-term transportation planning and programming activities would then need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides the local land use plans and policies (e.g., general plan) are not required to be consistent with either the RTP or SCS. Refer to Section 3.8, Greenhouse Gas Emissions, for details regarding these standards.

California Health and Safety Code, Division 25.5 – California Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted AB 32 (codified in the California HSC, Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. Under HSC Division 25.5, CARB has the primary responsibility for reducing the state's GHG emissions, however, it also tasked the CEC and the California Public Utilities Commission (CPUC) with providing information, analysis, and recommendations to CARB regarding strategies to reduce GHG emissions in the energy sector.

In 2016, the California State Legislature adopted SB 32 and its companion bill AB 197; both were signed by Governor Brown. SB 32 and AB 197 amends HSC Division 25.5 and establishes a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and includes provisions to ensure that the benefits of state climate policies reach into disadvantaged communities. Refer to Section 3.8, Greenhouse Gas Emissions, for details regarding these regulations.

CARB Heavy-Duty On-Road and Off-Road Vehicle Regulations

In 2004, the CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007 aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines.

Local

County of San Diego General Plan

The project site is located within the Fallbrook Community Plan area in unincorporated San Diego County. The following San Diego County General Plan goals and policies are applicable to the project.

Goal COS-4: Water Management. A balanced and regionally integrated water management approach to achieve the long-term viability of the County's water quality and supply.

Policy COS-4.1: Water Conservation. Require development to reduce the waste of potable water through use of efficient technologies and conservation efforts that minimize the County's dependence on imported water and conserve groundwater resources.

Policy COS-4.2: Drought-Efficient Landscaping. Require efficient irrigation systems and in new development encourage the use of native plant species and non-invasive drought tolerant/low water use plants in landscaping.

Goal COS-14: Sustainable Land Development. Land use development techniques and patterns that reduce emissions of criteria pollutants and GHGs through minimized transportation and energy demands, while protecting public health and contributing to a more sustainable environment.

Policy COS-14.1: Land Use Development Form. Require that development be located and designed to reduce vehicular trips (and associated air pollution) by utilizing compact regional and community-level development patterns while maintaining community character.

Policy COS-14.3: Sustainable Development. Require design of residential subdivisions and nonresidential development through "green" and sustainable land development practices to conserve energy, water, open space, and natural resources.

Policy COS-14.5: Building Siting and Orientation in Subdivisions. Require that buildings be located and oriented in new subdivisions and multi-structure non-residential projects to maximize passive solar heating during cool seasons, minimize heat gains during hot periods, enhance natural ventilation, and promote the effective use of daylight.

Policy COS-14.7: Alternative Energy Sources for Development Projects. Encourage development projects that use energy recovery, photovoltaic, and wind energy.

Policy COS-14.8: Minimize Air Pollution. Minimize land use conflicts that expose people to significant amounts of air pollutants.

Policy COS-14.10: Low-Emission Construction Vehicles and Equipment. Require County contractors and encourage other developers to use low-emission construction vehicles and equipment to improve air quality and reduce GHG emissions.

Policy COS-14.12: Heat Island Effect. Require that development be located and designed to minimize the "heat island" effect as appropriate to the location and density of development, incorporating such elements as cool roofs, cool pavements, and strategically placed shade trees.

Policy COS-14.13: Incentives for Sustainable and Low GHG Development. Provide incentives such as expedited project review and entitlement processing for developers that maximize use of sustainable and low GHG land development practices in exceedance of state and local standards.

Goal COS-15: Sustainable Architecture and Buildings. Building design and construction techniques that reduce emissions of criteria pollutants and GHGs, while protecting public health and contributing to a more sustainable environment.

Policy COS-15.1: Design and Construction of New Buildings. Require that new buildings be designed and constructed in accordance with "green building" programs that incorporate techniques and materials that maximize energy efficiency, incorporate the use of sustainable resources and recycled materials, and reduce emissions of GHGs and toxic air contaminants.

Policy COS-15.4: Title 24 Energy Standards. Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards.

Policy COS-15.6: Design and Construction Methods. Require development design and construction methods to minimize impacts to air quality.

Goal COS-17: Sustainable Solid Waste Management. Perform solid waste management in a manner that protects natural resources from pollutants while providing sufficient, long term capacity through vigorous reduction, reuse, recycling, and composting programs.

Policy COS-17.1: Reduction of Solid Waste Materials. Reduce greenhouse gas emissions and future land fill capacity needs through reduction, reuse, or recycling of all types of solid waste that is generated. Divert solid waste from landfills in compliance with state law.

Policy COS-17.6: Recycling Containers. Require that all new land development projects include space for recycling containers.

Policy COS-17.7: Material Recovery Program. Improve the County's rate of recycling by expanding solid waste recycling programs for residential and non-residential uses.

Goal COS-19: Sustainable Water Supply. Conservation of limited water supply supporting all uses including urban, rural, commercial, industrial, and agricultural uses.

Policy COS-19-1: Sustainable Development Practices. Require land development, building design, landscaping, and operational practices that minimize water consumption.

County of San Diego 2015-2020 Strategic Energy Plan

The main objectives of the County's Strategic Energy Plan are to encourage the reduction in energy and water consumption and to minimize greenhouse gas emissions for healthier and more sustainable communities (County, 2015). Applicable objectives and goals are listed below.

Objectives:

- Reduce energy and water consumption.
- Minimize greenhouse gas emissions for healthier and more sustainable communities.

Goals:

- **Reduce Energy and Water Consumption.** Reduce per capita energy use in the County communities by addressing energy efficiency in new construction, existing buildings, and water use.
- **Promote Renewable Energy.** Facilitate development and use of renewable energy that is compatible with natural resources and community character.
- **Transportation.** Reduce demand for fossil fuel consumption and address vehicle emissions by reducing vehicle miles traveled and promoting alternative fuel vehicles.

3.6.3 Thresholds of Significance

In accordance with Appendix F of the state *CEQA Guidelines*, for purposes of this Draft EIR, the project would have a significant impact with regard to energy if the project would:

- Conflict with adopted energy conservation plans (see Impact 3.6-1, below);
- Violate state or federal energy standards (see Impact 3.6-2, below);
- Cause wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and/or maintenance (see Impact 3.6-3, below); or
- Result in an increase in demand for electricity or natural gas that exceeds available supply or distribution infrastructure capabilities that could result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects (see Impact 3.6-4, below).

3.6.4 Methodology

Analysis of the project's energy impacts is based in part on the Energy Analysis provided in **Appendix L** of this Draft EIR. The evaluation of potential impacts related to energy usage that may result from the construction and long-term operations of the project has been conducted as described below.

Construction

The project would be constructed in two phases. Construction of Phase 1 would commence late 2019 and Phase 2 would commence early 2023, pending project approval and EIR certification. Phase 1 is anticipated to become operational in 2021 and full buildout and occupancy of the project is anticipated by 2025. Construction energy consumption would result primarily from transportation fuels (e.g., diesel and gasoline) used for haul trucks, heavy-duty construction equipment, and construction workers traveling to and from the site. Construction activities can vary substantially from day to day, depending on the specific type of construction activity and the number of workers and vendors traveling to the site. This analysis considers these factors and provides the estimated maximum construction energy consumption for the purposes of evaluating the associated impacts on energy resources.

Energy use during construction is forecasted by assuming a conservative estimate of construction activities (i.e., maximum daily equipment usage levels). The energy usage required for project

construction has been estimated based on the number and type of construction equipment that would be used during project construction, the extent that various equipment is utilized in terms of equipment operating hours or miles driven, and the estimated duration of construction activities. Energy for construction worker commuting trips has been estimated based on the predicted number of workers for the various phases of construction and the estimated VMT. The assessment also includes a discussion of the project's compliance with relevant energy-related regulatory measures that would minimize the amount of energy usage during construction.

Construction equipment would likely be diesel-fueled (with the exception of construction worker commute vehicles, which would primarily be gasoline-fueled). For the purposes of this assessment, it is conservatively assumed heavy-duty construction equipment and haul trucks would be diesel-fueled. This represents a worst-case scenario intended to represent the maximum potential energy use during construction. The estimated fuel economy for heavy-duty construction equipment is based on fuel consumption factors from the CARB off-road vehicle (OFFROAD) emissions model, which is a state-approved model for estimating emissions from off-road heavy-duty equipment. The estimated fuel economy for haul trucks and worker commute vehicles is based on fuel consumption factors from the CARB EMFAC emissions model, which is a state-approved model for estimating emissions of on-road vehicles and trucks. Both OFFROAD and EMFAC are incorporated into the California Emissions Estimator Model (CalEEMod), which is a state-approved emissions model used for the project's air quality and GHG emissions assessment. Therefore, this energy assessment is consistent with the modeling approach used for other environmental analyses in this Draft EIR and consistent with general CEQA standards.

Operation

Operation of the project would require energy in the form of electricity and natural gas for building heating, cooling, cooking, lighting, water demand and wastewater treatment, consumer electronics, and other energy needs, and transportation-fuels, primarily gasoline, for vehicles traveling to and from the site. The project is not currently proposing solar panels, although they may be incorporated into the project in the future, depending on funding availability. A portion of the energy required for the proposed project would be partially offset from elimination of the existing high school operation at the Sullivan Middle School campus, although the existing Sullivan campus high school facilities would be expected to be converted to other uses over time.

The energy usage required for project operations and routine and incidental maintenance activities is estimated based on the increase in energy demand from the new buildings. The energy usage takes into account building energy standards pursuant to the Title 24 Building Standards Code and CALGreen Code. Energy for transportation from employees, students, and parents to the site is estimated based on the predicted number of trips to and from the site and the estimated VMT. Energy usage from water demand (e.g., electricity used to supply, convey, treat, and distribute) is estimated based on the increased demand from the new buildings and facilities. The assessment also includes a discussion of the project's compliance with relevant energy-related regulations and project design features that would minimize the amount of energy usage during operations. These measures are also discussed in Section 3.8, Greenhouse Gas Emissions of this Draft EIR.

Building energy use factors, water demand factors, and vehicle trip lengths from CalEEMod are used to estimate building energy use and VMT. The estimated fuel economy for vehicles is based on fuel consumption factors from the CARB EMFAC emissions model. As discussed above, EMFAC is incorporated into CalEEMod, which is a state-approved emissions model used for the project's air quality and GHG emissions assessment. Therefore, this energy assessment is consistent with the modeling approach used for other environmental analyses in this Draft EIR and consistent with general CEQA standards. The project's estimated energy demands were then analyzed relative to SDG&E's existing and planned energy supplies in the project buildout year to determine if SDG&E would be able to meet the project's energy demands.

3.6.5 Impact Analysis

Project Consistency with Plans, Policies, or Regulations

Impact 3.6-1: The project would not conflict with adopted energy conservation plans.

The project would be designed in a manner that is consistent with relevant energy conservation plans designed to encourage development that results in the efficient use of energy resources. The County of San Diego's Strategic Energy Plan focuses on encouraging sustainability practices in energy use, water use, cost avoidance, transportation, green buildings and infrastructure, and monitoring and communication. The project would be consistent with the County's goal of reduced energy use and reduced water consumption as well as the development of renewable energy.

The proposed project would include installation of low flow bathroom and kitchen fixtures, water-efficient irrigation, native landscaping, artificial turf, and potential for solar panels (pending grant approval). Project buildings are proposed to be designed to accommodate roof mounted solar panels.

The proposed project would comply with CALGreen and Title 24 requirements to reduce energy consumption by implementing energy efficient building designs, reducing indoor and outdoor water demand, and installing energy-efficient appliances and equipment. These measures are consistent with the County's sustainability goals of improving energy and water efficiency in buildings, decreasing water use, and using energy efficient appliances and equipment.

The proposed project would also implement the following project design features. The potential energy usage reductions achieved by implementing the following project design features have not been quantified. Therefore, project-related energy demand would be further reduced.

- The project proposes to install light emitting diode (LED) lighting for interior and exterior spaces. According to the U.S. Department of Energy, LED lighting uses 75 percent less energy than traditional incandescent lighting (U.S. Dept. of Energy, 2017).
- Low voltage lighting control with room occupancy sensors would be provided in all areas and exterior lighting would include time clock controls. Exterior lights would be equipped with dimmers that would allow lighting to adjust based on the measured footcandle to provide the appropriate amount of lighting. These design features would reduce lighting-related energy

consumption by ensuring that lights are not left on when rooms are not occupied and that exterior lighting is not at full brightness when natural light is still available.

- Solar panels would be installed onsite if funding can be secured. Potential installation of solar panels would reduce electricity demand and would contribute to the state-wide goal to obtain 50 percent of electricity from renewable sources.
- Artificial turf is proposed for one of the two sports fields. Installation of artificial turf would reduce water required for outdoor landscaping and would reduce the energy required to convey water to the project site.

As a result, the project would implement project design features and incorporate water conservation, energy conservation, and other features consistent with the CALGreen, Title 24, and County sustainability goals. Therefore, the project would be consistent with the County's applicable goals for conserving energy and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Energy Standards

Impact 3.6-2: The project would not violate state or federal energy standards.

The project would use construction contractors who demonstrate compliance with applicable CARB regulations restricting the idling of heavy-duty diesel motor vehicles and governing the accelerated retrofitting, repowering, or replacement of heavy duty diesel on- and off-road equipment. As discussed in Section 3.8, *Greenhouse Gas Emissions*, CARB has adopted an Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other toxic air contaminants. The measure prohibits diesel-fueled commercial vehicles greater than 10,000 pounds from idling for more than five minutes at any given time. While intended to reduce construction emissions, compliance with the above anti-idling and emissions regulations would also result in energy savings from use of more fuel-efficient engines. According to the CARB staff report that was prepared when the anti-idling Airborne Toxic Control Measure was being proposed for adoption in late 2004/early 2005, the regulation was estimated to reduce non-essential idling and associated emissions of diesel particulate matter and nitrogen oxide (NO_X) emissions by 64 and 78 percent, respectively in analysis year 2009 (CARB, 2004). These emissions reductions are directly attributable to overall reduced idling times and the resultant reduced fuel consumption.

CARB has also adopted emission standards for off-road diesel construction equipment of greater than 25 hp. The emissions standards are referred to as "tiers" with Tier 4 being the most stringent (i.e., less polluting). The requirements are phased in, with full implementation for large and medium fleets by 2023 and for small fleets by 2028. The project would accelerate the use of cleaner construction equipment by using equipment that meet at a minimum the Tier 3 off-road emissions standards. Field testing from construction equipment manufacturers have shown that

higher tier equipment results in lower fuel consumption. For example, Tier 3 engines have shown a five percent reduction in fuel consumption compared to Tier 2 engines (John Deere, 2006).

Daily operation of the project would generate demand for electricity, natural gas, and water supply, as well as generate wastewater requiring conveyance, treatment, and disposal offsite. The project would comply with or exceed the applicable provisions of Title 24 and the CALGreen Code in affect at the time of building permit issuance. According to the CEC, the Title 24 (2016) standards use five percent less energy for lighting, heating, cooling, ventilation, and water heating than the prior Title 24 (2013) standards for non-residential uses (CEC, 2015a). The project would be designed to include numerous energy and waste reduction features that would allow the project to comply with the Title 24 standards and achieve energy savings required by state regulations.

With respect to operational transportation-related fuel usage, the project would support statewide efforts to improve transportation energy efficiency and reduce transportation energy consumption with respect to private automobiles. Because the project would construct a high school that is centrally located within BUSD and situated in an area with predominantly residential uses within walking distance, students who reside within proximity of the high school would be able to access the project via bicycle or foot and reduce vehicle miles traveled associated student pickup/drop-off and student/staff trips, which would help achieve the goals consistent with the RTP/SCS. Additionally, students residing in eastern Oceanside and the Pala Reservation would be bused to the high school, reducing vehicle miles that would otherwise be generated by student drop-off/pick-up.

Therefore, construction and operation of the project would be consistent with state and federal energy standards and would be designed to include numerous energy saving features that would achieve energy savings required. The project would also be located in a transportation-efficient location. Further, the project would provide student bussing, and therefore, would achieve reductions in VMT from private automobiles traveling to and from the site associated with student pick-up/drop-off. This project characteristic would be consistent with the 2016 RTP/SCS. As a result, impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Energy Demand

Impact 3.6-3: The project would not result in the wasteful, inefficient, and unnecessary consumption of energy during construction, operation, and/or maintenance.

Construction

Electricity

Electrical power would be consumed to construct the project. Electricity would be supplied by SDG&E from existing infrastructure along Gird Road. Overall, construction activities would

require minimal electricity consumption because construction equipment is fueled by diesel. Nighttime lighting requiring use of electricity would not be required because the County's noise ordinance generally restricts construction during nighttime hours. Therefore, construction activities would not result in any wasteful, inefficient, or unnecessary consumption of electricity and impacts would be less than significant.

Natural Gas

Natural gas is not expected to be consumed in substantial quantities during project construction. Such limited use would preclude the potential for wasteful, inefficient, and unnecessary consumption of natural gas, and impacts would be less than significant.

Transportation Energy

The estimated fuel usage for off-road equipment is based on the number and type of equipment that would be used during construction activities, hour usage estimates, the total duration of construction activities, and hourly equipment fuel consumption factors from the OFFROAD model. On-road equipment would include trucks to haul material to and from the project site, vendor trucks to deliver supplies necessary for project construction, and fuel used for construction worker trips. The estimated fuel usage for on-road trucks is based on the engineering estimates that form the basis of the construction-related impact analyses and fuel consumption information from the CARB on-road vehicle emissions model, EMFAC2014. The number of construction workers that would be required would vary based on the phase of construction and activity taking place. The transportation fuel required by construction workers to travel to and from the project site would depend on the total number of worker trips estimated for the duration of construction activity. The estimated fuel usage for construction worker commutes is based on the estimated number of workers for different phases of construction, the average distance that the workers would travel on local and regional roadways from CalEEMod, and emissions factors in the EMFAC2014 model. A summary of the annual fuel consumption during construction of the project is provided in **Table 3.6-1**. As shown in Table 3.6-1, on- and off-road vehicles would consume an estimated annual average of 49,472 gallons of diesel fuel for each year of project construction.

TABLE 3.6-1
PROJECT CONSTRUCTION FUEL USAGE

Source	Gallons of Diesel Fuel Per Year	Gallons of Gasoline Fuel Per Year
Construction:		
Heavy-Duty Construction Equipment	26,352	—
Haul Trucks	—	—
Vendor Trucks	23,120	—
Worker Trips	—	11,045
Annual Average (approximately up to a 4-year construction duration)	**49,472**	**11,045**
Estimated Project Fuel Savings from Construction Measures (Annual)	13,871 (Anti-Idling ATCM)	—

SOURCE: ESA 2017

As discussed previously under the impact analysis for Threshold 3.6-2, project construction would be completed with fuel-efficient equipment (Tier 3) consistent with state and federal regulations, and would comply with state measures to reduce the inefficient, wasteful, and unnecessary consumption of energy. While these regulations are intended to reduce construction emissions, compliance with the above anti-idling regulations would also result in energy savings from the use of more fuel-efficient engines. The use of Tier 3 engines has shown a five percent reduced fuel consumption compared to a Tier 2 engine (John Deere, 2006). Compliance with anti-idling regulations would result in fuel savings that would otherwise have been consumed in the absence of this measure, as shown in Table 3.6-1.

Based on available data, construction would use energy for necessary onsite activities and to transport construction materials to and from the site. As discussed above, idling restrictions and the use of cleaner, energy-efficient equipment would result in less fuel combustion and energy consumption and thus minimize the project's construction-related energy use. Therefore, construction of the project would not result in wasteful, inefficient, or unnecessary consumption of energy.

Operation

Electricity

The project would increase demand for electricity resources including for water supply, conveyance, distribution, and treatment. The project's estimated operational electricity demand, including from water demand, is provided in **Table 3.6-2**. As shown in Table 3.6-2, the project would result in a projected consumption of electricity of approximately 0.89 million kWh per year. As discussed previously, the project would install LED lighting for interior and exterior spaces, resulting in the use of 75 percent less energy than traditional incandescent lighting, install low voltage lighting, and would potentially install solar panels pending funding.

TABLE 3.6-2
PROJECT OPERATIONAL ENERGY USAGE

Source	Natural Gas per Year (million kBtu)	Electricity per Year (million kWh)	Diesel Fuel per Year (gallons)	Gasoline Fuel per Year (gallons)
Operations:				
Proposed Project [a]				
Building Electricity and Transportation	0.85	0.89	18,547	138,651
Water Electricity [b]	—	0.23	—	—
Total	**0.85**	**1.12**	**18,547**	**138,651**
Estimated Project Energy Savings from Land use Characteristics and Features (Annual)	Not quantified	0.66 (LED Lighting) [c]	Not quantified	6,045 (potential savings from electric vehicle supply equipment)

[a] Project gasoline and diesel are calculated based on the estimated VMT and fuel consumption factors from EMFAC2014. Electricity and natural gas are calculated in Section 3.8, Greenhouse Gas Emissions, of this Draft EIR using CalEEMod (includes water-related electricity for conveyance and treatment).

[b] Electricity for water supply, treatment, distribution, and wastewater treatment.

[c] Estimated based on Department of Energy assumptions. (USDOE 2017)

SOURCE: ESA 2017

As discussed previously, the project would comply with the applicable provisions of Title 24 and the CALGreen Code in effect at the time of building permit issuance. The project would be designed to include numerous energy saving features that would allow the project to comply with the Title 24 standards and achieve energy savings required by state regulations. As such, the project would minimize energy demand. Therefore, with incorporation of these features, operation of the project would not result in the wasteful, inefficient, or unnecessary consumption of electricity.

Natural Gas

The project would increase the demand for natural gas. As shown by the estimated operational natural gas demand provided in Table 3.6-2, the project is projected to generate an annual demand for natural gas of approximately 0.85 million kBtu.

The project would comply with the applicable provisions of Title 24 and the CALGreen Code in effect at the time of building permit issuance to minimize natural gas demand. The project would be designed to include numerous energy saving features that would allow the project to comply with Title 24 standards and achieve energy savings required by state regulations. As such, the project would minimize energy demand. Therefore, with incorporation of these features, operation of the project would not result in the wasteful, inefficient, or unnecessary consumption of natural gas.

Transportation Energy

The project's estimated operational transportation fuel demand is provided in Table 3.6-2. As discussed previously, the project would support statewide efforts to improve transportation energy efficiency and reduce transportation energy consumption with respect to private automobiles. Because the project would construct a high school that is centrally located within BUSD and situated in an area with predominantly residential uses within walking distance, students who reside within proximity of the high school would be able to access the project via bicycle or foot and reduce vehicle miles traveled associated student pickup/drop-off and student/staff trips, which would help achieve the goals consistent with the SCS. Additionally, students residing in eastern Oceanside and the Pala Reservation would be bused to the high school, reducing vehicle miles that would otherwise be generated by individual student drop-off/pick-up. The project would also include the installation of electric vehicle supply equipment (EVSE), pursuant to the CALGreen Code. According to the EMFAC2014 model, electric vehicles are predicted to account for approximately four percent of passenger vehicles in 2025 in the region. The estimated potential fuel savings from EVSE is provided in Table 3.6-2.

Because the project would provide a high school that is centrally located within BUSD within walking and biking distance to existing residential uses, student bussing would be provided that would reduce trips associated with parent drop-off/pick-up, and charging stations for electric vehicles would be provided, the project would minimize operational transportation fuel demand consistent with state and County goals. Therefore, operation of the project would not result in the wasteful, inefficient, and unnecessary consumption of transportation fuel and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Energy Infrastructure

Impact 3.6-4: The project would not result in an increase in demand for electricity or natural gas that exceeds available supply or distribution infrastructure capabilities; and therefore, would not result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

SDG&E is the electricity and natural gas utility provider for the proposed project. The annual sales of electricity and natural gas sale to customers for the 2016 fiscal year is shown in **Table 3.6-3**. The gasoline and diesel fuel consumption for transportation uses in California in 2015 is provided in Table 3.6-3. It is conservatively assumed heavy-duty construction equipment and haul trucks would be diesel-fueled. This also represents a worst-case scenario intended to represent the maximum potential energy use during construction.

The project's estimated energy and transportation fuel demand are also provided in Table 3.6-3. To put the project's energy and transportation fuel demand into perspective, the values are compared to the energy sales from regional providers and state transportation fuel supplies. As shown, the project would represent a very small fraction of the energy sales from regional providers and state transportation fuel supplies.

While construction of the project would result in a temporary fuel demand, according to the USEIA's International Energy Outlook 2016, the global supply of crude oil, other liquid hydrocarbons, and biofuels is expected to be adequate to meet the world's demand for liquid fuels through 2040 (USEIA, 2017b). As of December 31, 2015, California had approximately 2,333 million barrels (approximately 98.0 trillion gallons) of crude oil left in the state's reserves (USEIA, 2017a). Energy demands during the construction of the project would not represent a substantial fraction of the available energy supply in terms of equipment and transportation fuels and would not substantially affect existing local and regional supply and capacity for the future. Furthermore, construction of the project would use equipment that would be consistent with the energy standards applicable to construction equipment including limiting idling fuel consumption and using contractors that comply with applicable CARB regulatory standards that affect energy efficiency. Thus, project construction would not conflict with energy standards applicable to heavy-duty construction equipment and associated on-road trucks and vehicles. Because project construction would not entail demands on electricity, construction of the project would not increase demands on the electric power network during peak and base period demand periods. As a result, construction energy impacts on supplies and infrastructure would be less than significant.

TABLE 3.6-3
PROJECT ENERGY USAGE AND STATE AND REGIONAL ENERGY SUPPLY

Source	Natural Gas Per Year (million kBtu)	Electricity Per Year (million kWh)	Diesel Fuel Per Year (gallons)	Gasoline Fuel Per Year (gallons)
SDG&E (2016) [a] [b]	69	19,164	—	—
State of California (Transportation Sector) (2015) [c, d]	—	—	3,400,000,000	14,400,000,000
Construction:				
Heavy-Duty Construction Equipment	—	—	26,352	—
Haul Trucks	—	—	—	—
Vendor Trucks	—	—	23,120	—
Worker Trips	—	—	—	11,045
Annual Average (approximately up to a 4-year construction duration)	**—**	**—**	**49,472**	**11,045**
Percent of State (Transportation Sector)	—	—	0.0001%	0.0007%
Operations:				
Building Electricity and Transportation	0.85	0.89	18,547	138,651
Water Electricity [f]	—	0.23	—	—
Total	**0.85**	**1.12**	**18,547**	**138,651**
Percent of SDG&E	1.23%	0.0059%		
Percent of State (Transportation Sector)			0.001%	0.0005%

[a] Sempra 2016
[b] Natural gas converted from 71 billion cubic feet and a conversion factor of 1,035 Btu per cubic foot based on USEIA data (USEIA 2015c).
[c] USEIA 2015a
[d] USEIA 2015b
[e] Existing and Project gasoline and diesel are calculated based on the estimated VMT and fuel consumption factors from EMFAC2014. Electricity and natural gas are calculated in Section 3.6, Greenhouse Gas Emissions, using CalEEMod (includes water-related electricity for conveyance and treatment).
[f] Electricity for water supply, treatment, distribution, and wastewater treatment.

SOURCE: ESA 2017

The project would comply with or exceed the applicable provisions of the Title 24 standards and the CALGreen Code in effect at the time of building permit issuance. Examples of energy measures in the Title 24 standards and the CALGreen Code include energy efficiency metrics and performance standards for appliances, space-conditioning equipment (i.e., heating, ventilation and air conditioning [HVAC]), water heating systems, windows and doors, insulation, lighting, and roofing materials; indoor and outdoor water use efficiency and conservation performance metrics; and requirements to provide solar-ready buildings with a minimum solar zone area (solar zone is defined as a section of the roof designated and reserved for the future installation of a solar electric or solar thermal system). As previously discussed, the latest version of the Title 24 (2016) standards results in approximately five percent less energy demand for non-residential lighting, heating, cooling, ventilation, and water heating as compared to the prior Title 24 (2013) standards. The CEC conducts assessments and forecasts of all aspects of energy industry supply,

production, transportation, delivery and distribution, demand and prices (CEC, 2015b). The CEC uses these assessments and forecasts to develop energy policies, that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety (PRC Section 25301(a)). Based on the required load forecast projections, these utilities would be expected to meet the project's demand and electricity and natural gas services and supply and infrastructure impacts would be less than significant.

According to the Sempra Energy (owner of SDG&E) 2016 *Annual Forecast*, electricity sales experienced slight declines between 2014 and 2016. SDG&E delivered 19,164 million kWh of electricity in 2016 (Sempra, 2016). The project's estimated electrical consumption would account for approximately 0.0059 percent of SDG&E's 2016 sales. Therefore, it is anticipated that the SDG&E's existing and planned electricity capacity and electricity supplies would be sufficient to support the project's electricity demand. Thus, impacts related to electrical supply and infrastructure capacity would be less than significant.

According to Sempra Energy, SDG&E natural gas sales have been relatively stable over the past three years with a slight decrease from 73 billion cubic feet in 2014 and 2015 to 71 billion cubic feet in 2016. Based on the project's estimated natural gas consumption as shown in Table 3.6-2, the project would account for approximately 1.2 percent of SDG&E's 2016 sales. Therefore, it is anticipated that SDG&E's existing and planned natural gas supplies would be sufficient to support the project's demand for natural gas. Therefore, impacts related to natural gas would be less than significant.

With respect to operational transportation-related fuel usage, the project would support statewide efforts to improve transportation energy efficiency. Because the project would construct a high school that is centrally located within BUSD and situated in an area with predominantly residential uses within walking distance, students who reside within proximity of the high school would be able to access the project via bicycle or foot and reduce vehicle miles traveled associated student pickup/drop-off and student/staff trips, which would help achieve the goals consistent with the RTP/SCS. Additionally, students residing in eastern Oceanside and the Pala Reservation would be bused to the high school, reducing vehicle miles that would otherwise be generated by student drop-off/pick-up. The project would also include installation of electric vehicle charging stations, pursuant to the CALGreen Code. Alternative-fueled, electric, and hybrid vehicles, to the extent these types of vehicles would be used by passengers, would reduce the project's consumption of gasoline and diesel. According to the EMFAC2014 model, electric vehicles are predicted to account for approximately four percent of passenger vehicles in 2025 in the region. Nonetheless, electric vehicles would translate to a fuel savings as shown in Table 3.6-2. Plug-in electric vehicles would generally obtain battery power from utility-provided electricity, which are required to provide an increasing share of electricity from renewable sources (i.e., 33 percent by 2020 and 50 percent by 2030) under the state's Renewables Portfolio Standard. Therefore, while plug-in electric vehicles would replace traditional transportation fuels (i.e., gasoline) with utility provided electricity, the electricity would be provided by an increasing share of renewable sources resulting in an overall reduction in energy resource consumption. As discussed above, according to the USEIA's International Energy Outlook 2016, the global supply of crude oil, other liquid hydrocarbons, and biofuels is expected to be adequate to meet the

world's demand for liquid fuels through 2040 (USEIA, 2017b). As the project would incorporate characteristics and measures that would reduce transportation fuel usage, the project energy impacts on transportation fuel supplies and infrastructure would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

3.6.6 Cumulative Impact Analysis

Project Consistency with Plans, Policies, or Regulations

Electricity

The geographic context for the cumulative analysis of electricity is SDG&E's service area. Like the proposed project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and state energy standards under Title 24, and incorporate mitigation measures, as necessary. Therefore, the impacts related to consistency with energy plans, policies, or regulations would not be cumulatively considerable, and thus would be less than significant.

Natural Gas

The geographic context for the cumulative analysis of natural gas consumption is the SDG&E's service area. Like the proposed project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and state energy standards in Title 24, and incorporate mitigation measures, as necessary. Therefore, the project would not have a cumulatively considerable impact related to natural gas consumption and impacts would not be cumulatively considerable.

Transportation Energy

Buildout of the project and related projects in the region would be expected to increase overall VMT; however, the effect on transportation fuel demand would be minimized by future improvements to vehicle fuel economy pursuant to federal and state regulations. By 2025, vehicles are required to achieve 54.5 mpg (based on USEPA measurements), which is a 54 percent increase from the 35.5 mpg standard in the 2012-2016 standards. As discussed previously, the project would support statewide efforts to improve transportation energy efficiency. Siting land use development projects at infill sites is consistent with the state's overall goals to reduce VMT pursuant to SB 375, and as outlined in the 2016 RTP/SCS for the region, which seeks improved access and mobility by placing "destinations closer together, thereby decreasing the time and cost of traveling between them" (SCAG, 2016). Related projects would need to demonstrate consistency with these goals and incorporate project design features or mitigation measures as required under CEQA, which would also ensure related projects contribute to transportation energy efficiency.

Energy Standards

Electricity

The geographic context for the cumulative analysis of electricity is SDG&E's service area. Like the proposed project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and state energy standards under Title 24, and incorporate mitigation measures, as necessary. Therefore, the impacts related to compliance with current energy standards for electricity consumption would not be cumulatively considerable, and thus would be less than significant.

Natural Gas

The geographic context for the cumulative analysis of natural gas is SDG&E's service area. Like the proposed project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and state energy standards under Title 24, and incorporate mitigation measures, as necessary. Therefore, the impacts related to compliance with current energy standards for natural gas consumption would not be cumulatively considerable, and thus would be less than significant.

Transportation Energy

Buildout of the project and related projects in the region would be expected to increase overall VMT; however, the effect on transportation fuel demand would be minimized by future improvements to vehicle fuel economy pursuant to federal and state regulations. By 2025, vehicles are required to achieve 54.5 mpg (based on USEPA measurements), which is a 54 percent increase from the 35.5 mpg standard in the 2012-2016 standards. As discussed previously, the project would support statewide efforts to improve transportation energy efficiency. Siting land use development projects at infill sites is consistent with the state's overall goals to reduce VMT pursuant to SB 375, and as outlined in the 2016 RTP/SCS for the region, which seeks improved access and mobility by placing "destinations closer together, thereby decreasing the time and cost of traveling between them" (SCAG, 2016). Related projects would need to demonstrate consistency with these goals and incorporate project design features or mitigation measures as required under CEQA, which would also ensure related projects contribute to transportation energy efficiency.

Energy Demand

Electricity

Operation of the proposed project and related projects would require the use of electricity. Like the proposed project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and state energy standards under Title 24, and incorporate mitigation measures, as necessary. In addition to compliance with existing energy standards, the proposed project would further reduce electricity consumption by installing LED lighting, low-voltage lighting, and potentially installing solar panels on site. Therefore, the proposed project would not cause wasteful, inefficient, or unnecessary consumption of energy and would not be cumulatively considerable.

Natural Gas

Operation of the proposed project and related projects would require the use of natural gas. Like the proposed project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and state energy standards under Title 24, and incorporate mitigation measures, as necessary. Therefore, with incorporation of natural gas conservation features, the proposed project would not cause wasteful, inefficient, or unnecessary consumption of energy and would not be cumulatively considerable.

Transportation Energy

Construction fuel demand associated with the proposed project and related projects would be expected to comply with CARB regulations related to idling, engine retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment. These measures would result in fuel savings from use of more fuel-efficient engines. Additionally, the proposed project would utilize Tier 3 equipment, which results in a five percent reduction in fuel consumption compared to Tier 2 engines (John Deere, 2006). Therefore, the proposed project would not cause wasteful, inefficient, or unnecessary consumption of transportation fuel during construction and would not be cumulatively considerable.

Operation of the proposed project and related projects would require transportation fuel. Although BUSD would not be in control of the year, make, and model of employee, student, and parent passenger vehicles, a fuel efficiency of 54.4 mpg would be required by the year 2025 based on USEPA measurements. In order to encourage the use of electric vehicles, the proposed project and related projects would be expected to comply with CALGreen requirements for the installation of electric vehicle charging stations. Further, the proposed project would provide student bussing services to students residing in eastern Oceanside and the Pala Reservation. Bussing students to the proposed high school would potentially reduce the vehicle miles traveled by parents that would otherwise be generated by individual student drop-off/pick-up. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of transportation fuel during operation and would not be cumulatively considerable.

Energy Infrastructure

Electricity

The geographic context for the cumulative analysis of electricity is SDG&E's service area. Growth within this geography is anticipated to increase the demand for electricity and the need for infrastructure, such as new or expanded facilities.

Buildout of the project, the related projects, and additional growth forecasted to occur in the County would increase electricity consumption during project construction and operation, and may cumulatively increase the need for energy supplies. The CEC forecasts that SDG&E's peak demand in the year 2026, one year after the project buildout year of 2025, would be approximately 24,983 million kWh (CEC, 2017). The project is estimated to increase electricity demand by 1.12 million kWh per year, accounting for approximately 0.00004 percent of SDG&E's projected electricity demand for the year 2026.

Future development would result in the irreversible use of electricity resources that could limit future energy availability. However, the utility provider for the project and related projects have determined that the use of such resources would be minor compared to existing supply and infrastructure within the SDG&E service area and would be consistent with growth expectations for SDG&E's service area. Furthermore, as discussed above and based on evidence from the CEC, the project would not have a cumulatively considerable impact on existing energy resources either individually or incrementally when considered with the anticipated growth in the service areas. Accordingly, the impacts related to electricity consumption would not be cumulatively considerable, and thus would be less than significant.

Natural Gas

The geographic context for the cumulative analysis of natural gas is the SDG&E service area. Growth within this geography is anticipated to increase the demand for natural gas and the need for infrastructure, such as new or expanded facilities.

Buildout of the project and related projects in the SDG&E service area is expected to increase natural gas consumption and the need for natural gas supplies. According to the 2016 California Gas Report, SDG&E is forecast to require 109 million kBTU in the year 2025, the project's build out year (CGEU, 2016). The project is estimated to increase natural gas demand by 0.85 million kBTU per year, accounting for approximately 0.78 percent of SDG&E's projected natural gas demand for the year 2025.

Although future development projects would result in irreversible use of natural gas resources which could limit future availability, the use of such resources would be on a relatively small scale and would consistent with regional and local growth expectations for SDG&E's service area. Further, like the project, other future development projects would be expected to incorporate energy conservation features, comply with applicable regulations including CALGreen and state energy standards in Title 24, and incorporate mitigation measures, as necessary. Therefore, the project would not have a cumulatively considerable impact related to natural gas consumption and impacts would not be cumulatively considerable.

Transportation Energy

According to the USEIA's International Energy Outlook 2016, the global supply of crude oil, other liquid hydrocarbons, and biofuels is expected to be adequate to meet the world's demand for liquid fuels through 2040 (USEIA, 2017b). Therefore, as the project would incorporate land use characteristics consistent with state goals for reducing VMT, the project would not have a cumulatively considerable impact related to transportation energy, and impacts would be less than significant.

3.6.7 References

California Air Resources Board (CARB), 2004. Rulemaking, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Appendix F, July. Available at: https://www.arb.ca.gov/regact/idling/idling.htm, accessed May 2017.

California Energy Commission (CEC), 2015a. Adoption Hearing, 2016 Building Energy Efficiency Standards, June 10. Available at: http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10_hearing/2015-06-10_Adoption_Hearing_Presentation.pdf, accessed May 2017.

———, 2015b. Advancing State Energy Policy. Available at: http://www.energy.ca.gov/commission/fact_sheets/documents/core/MARK-Advancing_State_Energy_Policy.pdf, accessed on January 24, 2017.

———, 2017. California Energy Demand Updated Forecast, 2017-2027. January. Available at: http://docketpublic.energy.ca.gov/PublicDocuments/16-IEPR-05/TN215275_20170112T135223_California_Energy_Demand_Updated_Forecast_20172027.pdf, accessed September 2017.

California Gas and Electric Utilities (CGEU), 2016. 2016 California Gas Report. Available at: http://docketpublic.energy.ca.gov/PublicDocuments/16-BSTD-06/TN212364_20160720T111050_2016_California_Gas_Report.pdf, accessed September 2017.

County of San Diego, 2015. 2015-2020 Strategic Energy Plan. Available at: http://www.sandiegocounty.gov/content/dam/sdc/dgs/Doc/Energy_StrategicEnergyPlan.pdf, accessed October 2017.

John Deere, 2006. Engine Performance, Fuel Efficiency, and Clean Air, Emissions Technology for Non-Road Applications. Available at: http://bellpower.com/uploads/product_brochures/15_Exp_EmissionsBrochure%20dswt14%5B1%5D.pdf, accessed May 2017.

Sempra Energy, 2016. 2016 Annual Report. Available at: http://www.sempra.com/pdf/financial-reports/2016_annualreport.pdf, accessed August 2017.

Southern California Association of Governments (SCAG), 2016. 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. Available at: http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf, accessed May 2017.

U.S. Department of Energy, 2017. LED Lighting. Available at: https://energy.gov/energysaver/led-lighting, accessed August 2017.

United States Energy Information Administration (USEIA), 2015a. Table F3: Motor Gasoline Consumption, Price, and Expenditure Estimates. Available at: http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=CA, accessed May 2017.

USEIA, 2015b. Table F7: Distillate Fuel Oil Consumption Estimates. Available at: http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_fuel/html/fuel_use_df.html&sid=CA, accessed May 2017.

USEIA, 2015c. Natural Gas, Heat Content of Natural Gas Consumed. April 28. Available at: https://www.eia.gov/dnav/ng/ng_cons_heat_a_EPG0_VGTH_btucf_a.htm, accessed August 2017.

USEIA, 2017a. California, Profile Data. May 18. Available at: https://www.eia.gov/state/data.cfm?sid=CA#ReservesSupply, accessed May 2017.

USEIA, 2017b. International Energy Outlook 2016. Available at: http://www.eia.gov/outlooks/ieo/liquid_fuels.cfm, accessed May 2017.

3.7 Geology and Soils

This section provides an assessment of potential impacts related to geology, soils, and seismicity that could result from implementation of the proposed project. This section is based primarily on the findings of the Preliminary Geotechnical Engineering and Geologic Hazard Report prepared by Leighton Consulting, Inc. in April 2016, included as **Appendix M** of this Draft EIR.

3.7.1 Environmental Setting

Regional Conditions

The project site is located within the coastal sub-province of the Peninsular Ranges Geomorphic Province, near the western edge of the southern California batholith. The topography at the edge of the batholith changes from the rugged landforms developed on the batholith to the more subdued landforms, similar to those of the softer sedimentary formations of the coastal plain. Weathering, erosion and regional tectonic uplift created the valleys and ridges of the area. The ranges are tectonically and seismically active and include parts of four major northwest-striking, right-lateral strike slip Pacific and North American plate boundary fault zones. These include the Elsinore fault zone to the east, the Newport-Inglewood-Rose Canyon offshore fault zone on the west and the Coronado Bank fault and San Diego Trough fault zone to the southwest. The closest active fault is the Temecula Segment of the Elsinore Fault Zone located about 10 miles northeast. (Leighton Consulting Inc., 2016).

Site Specific Geology

The project site is underlain by natural geologic units comprised of young alluvial deposits and older alluvial flood-plain deposits. Undocumented fill soil was encountered during field exploration (Leighton Consulting Inc., 2016).

Undocumented Fill

Approximately 2.5 feet of undocumented fill soil was encountered in the northeast portion of the site. The encountered fill soil consisted of moist, silty sand. Although undocumented fill was not encountered in other areas of the site, undocumented fill may be present throughout the site.

Young Alluvium

Quaternary-age young alluvial soils were encountered in the lower elevation portions of the site to depths ranging from 5 feet to the maximum depth of exploration, 51.5 feet, below ground surface (bgs). Encountered alluvial soils consisted of dry to wet, loose to dense, silty sands and sandy clays with varying amounts of gravel.

Older Alluvium

Older alluvium was encountered in higher elevations of the site and beneath the young alluvium in two of the borings located in lower elevation areas. This unit is comprised of older alluvial flood plain deposits and the formation appears to be slightly weathered within the depth explored and consisted of dense to very dense, silty sand with varying amounts of gravel.

Geologic Hazards

Ground Shaking

Ground movement at a given site during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The Elsinore Fault Zone is the closest active fault zone to the project site. The most recent seismic event within the project vicinity occurred in 1910, with a Moment Magnitude (Mw) of 6.0. The Peak Ground Acceleration (PGA_M) at the project site is 0.465g.

Liquefaction

Liquefaction is a phenomenon that occurs when soil undergoes transformation from a solid state to a liquefied condition due to the effects of increased pore-water pressure. This typically occurs where susceptible soils (particularly the medium sand to silt range) are located over a high (less than 50 feet from the surface) groundwater table. Affected soils lose all strength during liquefaction and foundation failure can occur.

Liquefaction-induced settlement is considered a geologic hazard at this site due to the presence of shallow groundwater (<50 feet bgs). Additionally, based on site-specific dry-settlement analysis using the peak ground acceleration (0.51g) and moment magnitude of 7.8, the total dynamic settlement resulting from a design level earthquake is expected to be approximately than 2¼ inches on this site. The dynamic induced differential settlement is expected to be less 1 inch in a 40-foot horizontal distance. (Leighton Consulting 2016).

Lateral Spread

Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. The downslope movement is due to gravity and earthquake shaking combined. Such movement can occur on slope gradients of as little as one degree. Lateral spreading typically damages pipelines, utilities, bridges, and structures. The potential for lateral spreading to occur at the project site is low (Leighton Consulting Inc., 2016).

Subsidence

Land subsidence is a gradual setting or sudden sinking of the Earth's surface due to subsurface movement of earth materials. More than 80 percent of the identified subsidence in the United States is caused through overdrafting of groundwater. Drainage of organic soils, underground mining, natural compaction, and thawing of permafrost can also cause subsidence. Similar to collapse, subsidence causes large areas of land to sink, thereby potentially damaging foundations, walls, and floors. The potential for subsidence to occur at the project site is low (Leighton Consulting Inc., 2016).

Collapse

Collapsible soils consist of loose, dry, low-density materials that collapse and compact with the addition of water or excessive loading. Such soils are typical in areas of young alluvial fans, debris flow sediments, and aeolian (wind-blown) deposits. Collapse occurs when subsurface soils are excessively saturated at levels deeper than those reached by an average rainfall and the clay

bonds holding the soil grains together are eliminated. Collapse can result in cracked foundations, floors, and walls.

Expansive Soils

Certain types of clay soils expand when they are saturated and shrink when dried. These are called expansive soils, and can pose a threat to the integrity of improvements that are built on them without proper engineering. The expansion and contraction of soil varies with soil moisture content, and can be aggravated by the way a property is maintained or irrigated. Representative soil samples from the site possess very low to medium expansion potential with more expansive soils localized at depths greater than 10 feet (Leighton Consulting Inc., 2016).

Erosion

Erosion is a normal and inevitable geologic process in which earth materials are loosened, worn away, decomposed, or dissolved, and are removed from one place and transported to another location. Precipitation, running water, waves, and wind can increase the process of erosion.

3.7.2 Regulatory Setting

State

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones, and cities, counties, and other local permitting agencies to regulate certain development projects within these zones. For projects that would locate structures for human occupancy within designated Zones of Required Investigation, the Seismic Hazards Mapping Act requires project applicants to perform a site-specific geotechnical investigation to identify the potential site-specific seismic hazards and corrective measures, as appropriate, prior to receiving building permits. The *CGS Guidelines for Evaluating and Mitigating Seismic Hazards* (Special Publication 117A) provides guidance for evaluating and mitigating seismic hazards. The CGS is in the process of producing official maps based on USGS topographic quadrangles, as required by the act. To date, the CGS has not completed delineations for any of the USGS quadrangles in northern San Diego County, including the quadrangle that the proposed project is located in.

California Building Code

The CBC, which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, egress facilities, and general building stability. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all building and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration,

movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2016 edition of the CBC is based on the 2015 International Building Code published by the International Code Council. The code is updated triennially, and the 2016 edition of the CBC was published by the California Building Standards Commission on July 1, 2016, and took effect starting January 1, 2017. The 2016 CBC contains California amendments based on the American Society of Civil Engineers Minimum Design Standard ASCE/SEI 7-16, *Minimum Design Loads for Buildings and Other Structures*, provides requirements for general structural design, and includes means for determining earthquake loads[1] as well as other loads (such as wind loads) for inclusion into building codes. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

California Excavation Notification Requirements

California Code of Regulations Section 4216 requires that construction contractors report a project that involves excavation 48 hours prior to breaking ground. This program allows owners of buried installations to identify and mark the location of its facilities before any nearby excavation projects commence. Adherence to this law by contractors of projects reduces the potential of inadvertent pipeline and utility damage and leaks.

California Occupational Safety and Health Administration Regulations

Occupational safety standards exist in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the work place. In California, the California Division of Occupational Safety and Health (Cal/OSHA) and the federal OSHA are the agencies responsible for ensuring worker safety in the workplace. The OSHA Excavation and Trenching standard (29 CFR 1926.650), covers requirements for excavation and trenching operations, which are among the most hazardous construction activities. Cal/OSHA is the implementing agency for both state and federal OSHA standards.

National Pollutant Discharge Elimination System Construction General Permit

Construction associated with the proposed project may disturb more than 1 acre of land surface and thus affect the quality of stormwater discharges into waters of the United States. Therefore, if ground disturbance is greater than 1 acre of land, the proposed project would be subject to the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Order 2012-0006-DWQ, NPDES No. CAS000002). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the United States from construction sites that disturb 1 or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than 1 acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such

[1] A load is the overall force to which a structure is subjected in supporting a weight or mass, or in resisting externally applied forces. Excess load or overloading may cause structural failure.

as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters' risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters' risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction projects could be subject to the following requirements:

- Effluent standards
- Good site management "housekeeping"
- Non-stormwater management
- Erosion and sediment controls
- Run-on and runoff controls
- Inspection, maintenance, and repair
- Monitoring and reporting requirements

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific best management practices (BMPs) designed to prevent sediment and pollutants from contacting stormwater and moving off-site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit.

The SWPPP must be prepared before the construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project area. The SWPPP must list BMPs and the placement of those BMPs that the applicant would use to protect stormwater runoff. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations and vehicle and equipment washing and fueling. The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site following construction).

In the project area, if ground disturbance is greater than 1 acre of land, the Construction General Permit is implemented and enforced by the San Diego Regional Water Quality Control Board (RWQCB), which administers the stormwater permitting program. Dischargers are required to electronically submit a notice of intent (NOI) and permit registration documents (PRDs) in order to obtain coverage under this Construction General Permit. Dischargers are responsible for notifying the RWQCB of violations or incidents of noncompliance, as well as for submitting

annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a state-qualified SWPPP Developer and implementation of the SWPPP must be overseen by a state-qualified SWPPP Practitioner. A Legally Responsible Person, who is legally authorized to sign and certify PRDs, is responsible for obtaining coverage under the permit.

Local

San Diego County General Plan

The San Diego County Plan is a framework for the future growth and development of the unincorporated areas of the County. It is based on a set of guiding principles designed to protect the County's unique and diverse natural resources. It reflects an environmentally sustainable approach to planning that balances the need for adequate infrastructure, housing, and economic vitality, while maintaining and preserving each unique community within the County, agricultural areas, and extensive open space.

The Safety Element states that natural geologic processes that represent a hazard to life, health, or property are considered geologic hazards. Natural geologic hazards affecting people and property in County of San Diego include earthquakes, which can cause surface fault rupture, ground shaking, landslides, and liquefaction. Of the geological hazards, seismic hazards pose the highest potential for causing widespread damage. All of San Diego County is located within Seismic Zone 4 (Sec. 1629.4.1 of the California Building Code [CBC]), which is the highest Seismic Zone and, like most of Southern California, is subject to ground shaking. The following General Plan goals and policies are applicable to the proposed project.

Geological Hazards

Goal S-7: Reduced Seismic Hazards. Minimized personal injury and property damage resulting from seismic hazards.

Policy S-7.1: Development Location. Locate development in areas where the risk to people or resources is minimized. In accordance with the California Department of Conservation Special Publication 42, require development be located a minimum of 50 feet from active or potentially active faults, unless an alternative setback distance is approved based on geologic analysis and feasible engineering design measures adequate to demonstrate that the fault rupture hazard would be avoided.

Policy S-7.2: Engineering Measures to Reduce Risk. Require all development to include engineering measures to reduce risk in accordance with the California Building Code, Uniform Building Code, and other seismic and geologic hazard safety standards, including design and construction standards that regulate land use in areas known to have or potentially have significant seismic and/or other geologic hazards.

Policy S-7.3: Land Use Location. Prohibit high occupancy uses, essential public facilities, and uses that permit significant amounts of hazardous materials within Alquist-Priolo and County special studies zones.

Policy S-7.4: Unreinforced Masonry Structures. Require the retrofitting of unreinforced masonry structures to minimize damage in the event of seismic or geologic hazards.

Policy S-7.5: Retrofitting of Essential Facilities. Seismic retrofit essential facilities to minimize damage in the event of seismic or geologic hazards.

Goal S-8: Reduced Landslide, Mudslide, and Rock Fall Hazards. Minimized personal injury and property damage caused by mudslides, landslides, or rock falls.

Policy S-8.1: Landslide Risks. Direct development away from areas with high landslide, mudslide, or rock fall potential when engineering solutions have been determined by the County to be infeasible.

Policy S-8.2: Risk of Slope Instability. Prohibit development from causing or contributing to slope instability

3.7.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to Geology and Soils if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known (see Section 4.1 in Chapter 4.0, Other CEQA Considerations)
  - Strong seismic ground shaking (see Impact 3.7-1, below);
  - Seismic-related ground failure, including liquefaction (see Impact 3.7-2, below); and
  - Landslides (see Section 4.1 in Chapter 4.0, Other CEQA Considerations);
- Result in substantial soil erosion or the loss of topsoil (see Impact 3.7-3, below);
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse (see Impact 3.7-4, below);
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property (see Impact 3.7-5, below); or
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water (see Section 4.1 in Chapter 4.0, Other CEQA Considerations).

Please see Chapter 4.1, *Impacts Found Not to Be Significant*, of this Draft EIR, for a discussion of other issues associated with the evaluation of geology and soils where the characteristics of the project made it clear that effects would not be significant and further evaluation in this section was not warranted.

Project Design Features

All development would be undertaken pursuant to applicable codes and regulations, including the County's Building Code. Prior to issuance of a grading permit, a qualified geotechnical engineer would be required to submit a final geotechnical report with recommendations for seismic safety

and design requirements for foundations, retailing walls/shoring and excavation. To ensure preparation of this report, the District would implement PDF 3.7-1 as a part of the proposed project.

> **PDF 3.7-1:** The District shall prepare a site-specific, design-level geotechnical investigation for the proposed project to supplement the preliminary, predevelopment geotechnical investigation for review by the County[1]. The investigation shall include recommendations applicable to foundation design, earthwork, shoring and site preparation that will minimize the effects of anticipated ground shaking and any other identified geologic hazards. The analysis shall include measures to reduce the potential to expose people or structures to the risk of loss, injury or death to acceptable levels. The analyses shall be prepared in accordance with applicable County ordinances and policies and consistent with the most recent version of the California Building Code (CBC), Seismic Hazards Mapping Act, and Zone 4 requirements, which requires structural design that can mitigate potential risks from expansive soils, liquefaction hazards, and ground accelerations expected from known active faults to acceptable levels. The following measures designed to reduce the potential for liquefaction hazards would include, but not be limited to: Subsurface soil improvement;
>
> - Mitigation for liquefaction hazards suggested in the CGS Guidelines for Evaluating and Mitigating Seismic Hazards (CGS Special Publication 117A) including edge containment structures, removal or treatment of liquefiable soils, modification of site geometry, lowering the groundwater table, in-situ ground densification, deep foundations, reinforced shallow foundations, and structural design that can withstand predicted displacements.

Implementation of these features, and those contained in the geotechnical report will use proven methods, generally accepted by registered engineers, to reduce the risk for geologic hazards, such as those from ground-failure, liquefaction, and expansive soils.

3.7.4 Methodology

The analysis in this Section is based primarily on the findings of the Preliminary Geotechnical Engineering and Geologic Hazard Report prepared by Leighton Consulting, Inc. in April 2016, included as Appendix M of this Draft EIR. Leighton Consulting conducted a field exploration which included excavation of 10 exploratory borings. Soil samples were collected for laboratory testing and evaluation. In addition to soil sampling, Leighton Consulting conducted a detailed review of vertical, sequential, stereo aerial photograph pairs using a magnified stereoscope to identify possible geomorphic evidence of landslide and faulting.

[1] Review by the County would only be required for the Gird Road improvements.

3.7.5 Impact Analysis

Seismic Ground Shaking

Impact 3.7-1: The project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.

The project site, like the rest of California, is located within a seismically active region. The principal source of seismic activity is movement along the northwest-trending regional fault systems such as the San Andreas, San Jacinto, and Elsinore Fault Zones. According to the Preliminary Geotechnical Engineering and Geologic Hazard Report prepared by Leighton Consulting, the nearest known active fault is the Temecula Segment of the Elsinore Fault Zone located approximately 10 miles northeast of the site.

The project is subject to the seismic design criteria of the CBC. The County adopted the CBC and included it in its Code of Ordinances (Section 92.1.001). The CBC contains seismic safety provisions with the aim of preventing building collapse during a design earthquake, so that occupants would be able to evacuate after the earthquake. A design earthquake is one with a two percent chance of exceedance in 50 years, or an average return period of 2,475 years. Adherence to these requirements would reduce the potential of building collapse during an earthquake, thereby minimizing injury and loss of life. Although structures may be damaged during earthquakes, adherence to seismic design requirements will minimize damage to property within the structure because the structure would be designed not to collapse. The CBC is intended to provide minimum requirements to prevent major structural failure and loss of life. To ensure this, the final choice of foundation design, site preparation requirements, and construction materials for the proposed project would be informed by soil and/or geotechnical engineering reports to be prepared prior to final designs, as required by PDF 3.4-1. Required compliance with the CBC through the implementation of PDF 3.4-1 and compliance with the provisions of the Seismic Hazard Mapping Act would ensure that potential impacts from strong seismic ground shaking would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Liquefaction

Impact 3.7-2: The project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction.

Liquefaction occurs when the strength and stiffness of soil is reduced by intense ground shaking. When intense ground shaking occurs, water in highly saturated soils mixes with that soil, resulting in ground failure. The project site is adjacent to a liquefaction susceptibility area

(Leighton Consulting Inc., 2016). Due to the project site's proximity to a susceptible area and the presence of shallow groundwater, there is potential for liquefaction-induced settlement to occur.

The project would be subject to the General Plan Safety Element policies requiring engineering measures to reduce risks in accordance with the CBC, UBC, and other seismic and geologic hazard safety standards. All earthwork and grading would be performed in accordance with all applicable requirements of the grading and excavation codes of the County and in compliance with all applicable provisions of the CBC. Compliance with the CBC and the provisions set forth in CGS's Special Publication 117A would be ensured through the implementation of PDF 3.7-1. Therefore, the proposed project would not expose people or structures to potential adverse effects involving seismic-related ground failure, including liquefaction, and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less Than Significant

Soil Erosion or Topsoil Loss

Impact 3.7-3: The project would not result in substantial soil erosion or the loss of topsoil.

The project site is currently vacant. During construction activities, 24.6 acres of the 50-acre site would be disturbed and developed with structures, landscaping, sports fields, parking, and other impervious surfaces. Soils would be exposed during grading activities, potentially resulting in soil erosion or topsoil loss. Because more than 1 acre would be disturbed at a time, the project would be required to comply with the Construction General Permit. This entails preparation and implementation of a site-specific SWPPP that includes erosion- and sediment-control BMPs designed to prevent erosion from occurring on site and to retain any eroded soils within site boundaries to be redeposited on site following construction.

County Code Section 67.809 requires that, prior to the issuance of any permit that allows for commencement of construction involving land disturbance, a plan describing the pollution control strategies to be implemented onsite shall be submitted and to the satisfaction of the San Diego County Director of Public Works. The County's BMP Design Manual provides guidance for land development to comply with the 2013 Municipal Separate Storm Sewer System (MS4) Permit (Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100). Implementation of BMPs would ensure that impacts related to erosion and loss of topsoil during construction would be less than significant.

Following completion of construction activities, the majority of the project site would be development with structures, parking, sports fields, and other impervious surfaces. Ten acres of the project site contain suitable and marginal habitat and would therefore not be disturbed by the proposed project. This undisturbed area as well as landscaped areas would contain permeable soils, stabilized by vegetation, resulting in less runoff. No large areas of exposed soil would be

present during project operation. Therefore, impacts related to erosion and loss of topsoil during project operations would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less Than Significant

Unstable Geologic Location

Impact 3.7-4: The project would not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and would not result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

As discussed above for Impact 3.7-2, impacts related to liquefaction would be less than significant. Due to the dense granular nature of the site soils and moderate relief across the site, the risk of deep-seated slope failure on this site or adjacent sites is considered very low. The site is not considered susceptible to seismically induced landslides.

Due to the depth to and thickness of liquefiable layers interbedded with non-liquefiable clay, evaluation of onsite soils indicated that the site is not likely to experience surface manifestation of liquefaction including lateral spreading (Leighton Consulting Inc., 2016). It was also determined that the potential for subsidence and collapse would be very low. Nevertheless, preparation of a design-level geotechnical evaluation prior to final design and construction would be required to ensure a reduction of hazards associated with unstable soils. Adherence to the current CBC and local codes regulating construction would ensure that improvements are designed to withstand unstable soil. This would be ensured through the implementation of PDF 3.4-1. Therefore, impacts related to unstable soils would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less Than Significant

Expansive Soil

Impact 3.7-5: The project would not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), and would not create substantial risks to life or property.

According to the Preliminary Geotechnical Engineering and Geologic Hazard Report prepared for the project, on-site soils are expected to possess very low to medium expansion potential. However, more expansive soils are expected to be localized and associated with interbedded silt and clay at depths greater than 10 feet below the surface (Leighton Consulting Inc., 2016).

The project is subject to CBC Standards including requirements for excavation, fill, footings, retaining walls, and pier and pile foundations. Typical design features required by the CBC are

ground improvement or foundational design. Ground improvement includes removal and re-compaction of low-density soils and removal of excess groundwater. Similarly, over-excavation and re-compaction of soils is a common method to prevent soil compression. Implementation and compliance with the County General Plan, Code of Ordinances, and CBC requirements would limit hazard impacts related to expansive soils to less than significant levels.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less Than Significant

3.7.6 Cumulative Impact Analysis

Seismic Impacts and Soil Stability

Future development within the project area has the potential to result in seismic hazards such as ground shaking, fault rupture, liquefaction, and other geologic hazards associated with soil instability or seismic events. The nearest cumulative project to the project site is more than 1,000 feet away. Due to the topography of the surrounding area, cumulative projects would not contribute to geologic hazards on or immediately adjacent to the project site. Also because of the distance, the proposed project would not contribute to potential geologic hazards of cumulative development. Therefore, the proposed projects contribution to potential cumulative impacts regarding geologic hazards would be considered less than cumulatively considerable.

3.7.7 References

County of San Diego, 2011. General Plan. Available at: http://www.sandiegocounty.gov/content/sdc/pds/generalplan.html, accessed October 31, 2017.

Leighton Consulting, Inc., 2016. *Preliminary Geotechnical Engineering and Geologic Hazard Report: Proposed High School – Gird Road Property, APN: 124-340-34-00, Fallbrook Area, San Diego County, California*. April 22.

3.8 Greenhouse Gas Emissions

This section evaluates the potential for impacts related to greenhouse gas (GHG) emissions and global climate change resulting from implementation of the proposed project. The existing setting is described along with the relevant regulatory background. Project impacts and mitigation measures, as necessary, are presented.

3.8.1 Environmental Setting

Climate Setting

The proposed project is located within unincorporated San Diego County, the boundaries of which are contiguous with the San Diego Air Basin (SDAB). The topography in the SDAB varies greatly, from beaches on the west to mountains and desert on the east, defined by mesa tops intersected by canyon areas. Climate in the SDAB region is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and drives the prevailing winds. Based on past climate records from the Western Regional Climate Center (WRCC) monitoring stations located in Vista (Vista 2 NNE, California 049378) the average precipitation in the area ranges from 0.11 to 2.76 inches annually, occurring primarily from November through April (WRCC, 2017).

Climate Change Overview

Gases that trap heat in the atmosphere are called GHGs. The major concern with GHGs is that increases in their concentrations are causing global climate change. Global climate change is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to human activities, most in the scientific community agree that there is a direct link between increased emissions of GHGs and long term global temperature increases.

The State identifies six primary GHGs of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). Because different GHGs have different global warming potentials (GWPs) and CO_2 is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). For example, CH_4 has a GWP of 25 (over a 100-year period); therefore, one metric ton (MT) of CH_4 is equivalent to 25 MT of CO_2 equivalents ($MTCO_2e$). The GWP ratios for the are available from the United Nations Intergovernmental Panel on Climate Change (IPCC) and are published in the *Fourth Assessment Report* (AR4). By applying the GWP ratios, project-related CO_2e emissions can be tabulated in metric tons (MT) per year. Large emission sources are reported in million metric tons (MMT) of CO_2e.[1]

Some of the potential effects in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more forest fires, and more

[1] A metric ton is 1,000 kilograms; it is equal to approximately 1.1 U.S. tons and approximately 2,204.6 pounds.

drought years. Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2001):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

Impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, it is clear that the quantity is enormous, and no single project would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

Greenhouse Gas Emissions Sources

According to much of the scientific literature on this topic, emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors. Emissions of CO_2 are by-products of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, and are two of the most common processes of CO_2 sequestration.

California produced 440.4 MMT CO_2e in 2015. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2015, accounting for approximately 37 percent of total GHG emissions in the State, followed by the industrial sector (21 percent) and the electric power sector (including both in-state and out-of-state sources) (19 percent) (CARB, 2017c).

The County's GHG emissions were approximately 32.1 MMT CO_2e in 2010. On-road transportation was the largest source of GHG emissions at approximately 43 percent, followed by the electricity production at approximately 24 percent, and the remaining 33 percent from natural

gas end uses, civil aviation, industrial processes, fuel consumption, agriculture and other sources (Anders 2013).

3.8.2 Regulatory Setting

Federal

The United States Environmental Protection Agency (USEPA) is responsible for implementing federal policy to address GHGs. The federal government administers a wide array of public-private partnerships to reduce the GHG intensity generated in the United States. These programs focus on energy efficiency, renewable energy, methane and other non-CO_2 gases, agricultural practices, and implementation of technologies to achieve GHG reductions. The USEPA implements numerous voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the Energy Star labeling system for energy-efficient products) play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial and commercial buildings, and many major industrial sectors.

In December 2009, the USEPA Administrator made two distinct findings regarding GHGs under Section 202(a) of the federal CAA. USEPA adopted a Final Endangerment Finding for the six defined GHGs: CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. The Endangerment Finding is required before USEPA can regulate GHG emissions under Section 202(a)(1) of the CAA. USEPA also adopted a Cause or Contribute Finding in which the USEPA Administrator found that GHG emissions from motor vehicle and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. These findings do not themselves impose any requirements on industry or other entities. However, these actions were a prerequisite for implementing GHG emissions standards for vehicles.

In May 2009, the President of the United States announced a national policy for fuel efficiency and emissions standards in the U.S. auto industry, which were jointly adopted by USEPA and United States Department of Transportation (USDOT) in 2010, and apply to passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpasses the prior Corporate Average Fuel Economy (CAFE) standards and requires an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO_2 per mile by model year 2016, based on USEPA calculation methods. In August 2012, standards were adopted for model year 2017 through 2025 passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO_2 per mile. According to USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle (USEPA, 2012).

In September 2011, USEPA and the National Highway Traffic Safety Administration (NHTSA) developed the Heavy-Duty Vehicle Greenhouse Gas Regulation National Program designed to reduce fuel consumption (and GHG emissions by association) from medium- and heavy-duty vehicles for model year 2014 to 2018 vehicles, which is projected to reduce GHG emissions by approximately 270 million metric tons. In February 2014, the President of the United States directed USEPA and NHTSA to extend the Program beyond vehicle model year 2018, to further reduce fuel consumption and GHG emissions through the application of advanced technologies.

USEPA and NHTSA, in collaboration with California Air Resources Board (CARB), issued a notice of proposed rulemaking in June 2015. Requirements of this program apply to heavy- and medium-duty trucks used during the proposed construction activities of the proposed project.

State

California has promulgated a series of executive orders, laws, and regulations aimed at reducing both the level of GHGs in the atmosphere and emissions of GHGs from commercial and private activities within the State.

California Air Resources Board

CARB, a part of the CalEPA, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California's State Implementation Plan, for which it works closely with the federal government and the local air districts. The State Implementation Plan is required for the State to take over implementation of the federal Clean Air Act.

Executive Order S-3-05 and Executive Order B-30-15

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets:

a) By 2010, California shall reduce GHG emissions to 2000 levels;

b) By 2020, California shall reduce GHG emissions to 1990 levels; and

c) By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

In accordance with Executive Order S-3-05, the Secretary of CalEPA is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs. Some of the agency representatives involved in the GHG reduction plan include the Secretary of the Business, Transportation and Housing Agency, the Secretary of the Department of Food and Agriculture, the Secretary of the Resources Agency, the Chairperson of CARB, the Chairperson of the California Energy Commission, and the President of the Public Utilities Commission. Representatives from these agencies comprise the California Climate Action Team (CAT).

The CAT provides biennial reports to the Governor and Legislature on the state of GHG reductions in the state as well as strategies for mitigating and adapting to climate change. The first CAT Report to the Governor and the Legislature in 2006 contained recommendations and strategies to help meet the targets in Executive Order S-3-05 (CalEPA, 2006). The 2010 CAT Report, finalized in December 2010, expanded on the policy-oriented 2006 assessment (CalEPA, 2010). The new information detailed in the CAT Report included development of revised climate

and sea-level projections using new information and tools that had become available in the previous two years; and an evaluation of climate change within the context of broader social changes, such as land-use changes and demographic shifts.

On April 29, 2015, California Governor Brown issued Executive Order B-30-15. Therein, Governor Brown:

a) Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030.

b) Ordered all state agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets.

c) Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

In response to the 2030 GHG reduction target, CARB released the 2017 Climate Change Scoping Plan Update in January 2017 (CARB, 2017e). The Scoping Plan Update outlines the strategies the State will implement to achieve the 2030 GHG reduction target, which build on the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, improved vehicle, truck and freight movement emissions standards, increasing renewable energy, and strategies to reduce methane emissions from agricultural and other wastes by using it to meet our energy needs. The Scoping Plan Update also comprehensively addresses GHG emissions from natural and working lands of California, including the agriculture and forestry sectors. The Scoping Plan Update considers the following scenarios:

a) Proposed Scenario: Continuing the Cap-and-Trade Program combined with an additional 20 percent reduction of greenhouse gases in the refinery sector.

b) Alternative 1: Direct regulations on a wide variety of sectors, such as specific required reductions for all large GHG sources, more renewables, etc.

c) Alternative 2: A carbon tax to put a price on carbon, instead of the Cap-and-Trade Program.

d) Alternative 3: All Cap-and-Trade. This would remove the refinery measure and keep the LCFS at 10 percent.

e) Alternative 4: Cap-and-Tax. This would place a declining cap on industry, and natural gas and fuel suppliers, while also requiring them to pay a tax on each ton of GHG emitted.

CARB was scheduled to consider the proposed scenario and alternatives and potential adoption of the 2017 Climate Change Scoping Plan Update in late June 2017; however, CARB has postponed this to an undetermined future date (CARB, 2017d).

California Health and Safety Code, Division 25.5 – California Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted Assembly Bill (AB) 32 (codified in the California HSC, Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. HSC Division 25.5 defines regulated GHGs as CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 and represents the first

enforceable statewide program to limit emissions of these GHGs from all major industries, with penalties for noncompliance. The law further requires that reduction measures be technologically feasible and cost effective. Under HSC Division 25.5, CARB has the primary responsibility for reducing GHG emissions. CARB is required to adopt rules and regulations directing state actions that would achieve GHG emissions reductions equivalent to 1990 statewide levels by 2020.

As required by HSC Division 25.5, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions reduction target for 2020. The 2020 emissions reduction target was originally set at 427 $MMTCO_2e$ using the GWP values from the IPCC SAR. CARB has determined the updated target, based on GWP values from the IPCC AR4, for the 1990 GHG emissions inventory and 2020 GHG emissions target is now 431 $MMTCO_2e$. CARB also projected the state's 2020 GHG emissions under business-as-usual (BAU) conditions, also known as no action taken (NAT) conditions – that is, emissions that would occur without any plans, policies, or regulations to reduce GHG emissions. CARB originally used an average of the state's GHG emissions from 2002 through 2004 and projected the 2020 levels at approximately 596 $MMTCO_2e$ (using GWP values from the IPCC SAR). CARB also updated the State's projected 2020 emissions estimate to account for the effect of the 2007–2009 economic recession, new estimates for future fuel and energy demand, and the reductions required by regulation that were recently adopted for motor vehicles and renewable energy. CARB's projected statewide 2020 emissions estimate using the GWP values from the IPCC AR4 is 509.4 $MMTCO_2e$ (CARB 2014a). In the 2017 Climate Change Scoping Plan Update, CARB provides the estimated projected statewide 2030 emissions and the level of reductions necessary to achieve the 2030 target of 40 percent below 1990 levels, taking into account 2020 GHG reduction policies and programs. A summary of the GHG emissions reductions required under HSC Division 25.5 is provided in **Table 3.8-1**.

In 2016, the California State Legislature adopted Senate Bill (SB) 32 and its companion bill AB 197; both were signed by Governor Brown. SB 32 and AB 197 amends HSC Division 25.5 and establishes a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and includes provisions to ensure that the benefits of state climate policies reach into disadvantaged communities. CARB is in the process of preparing the second update to the Scoping Plan to reflect the 2030 target established in Executive Order B-30-15 and SB 32. The 2017 Scoping Plan Update discusses a Proposed Scenario and four alternatives. CARB states that the Proposed Scenario "is the clear choice to achieve the State's climate and clean air goals (2017e)." Under the Proposed Scenario, the majority of the reductions would result from continuation of the Cap-and-Trade regulation. Additional reductions are achieved from requiring 20 percent reduction of GHG emissions from the refinery sector, electricity sector standards (i.e., utility providers to supply 50 percent renewable electricity by 2030), doubling the energy efficiency savings at end uses, additional reductions from the Low Carbon Fuel Standard (LCFS), implementing the short-lived GHG strategy (e.g., hydrofluorocarbons), and implementing the mobile source strategy and sustainable freight action plan. The alternatives are designed to consider various combinations of these programs as well as consideration of a carbon tax in the event the Cap-and-Trade regulation is not continued.

TABLE 3.8-1
ESTIMATED GREENHOUSE GAS EMISSIONS REDUCTIONS REQUIRED BY HSC DIVISION 25.5

Emissions Scenario	GHG Emissions (MMTCO2e)
2008 Scoping Plan (IPCC SAR)	
2020 BAU Forecast (CARB 2008 Scoping Plan Estimate)	596
2020 Emissions Target Set by AB 32 (i.e., 1990 level)	427
Reduction below Business-As-Usual necessary to achieve 1990 levels by 2020	**169 (28.4%) [a]**
2011 Scoping Plan (IPCC AR4)	
2020 BAU Forecast (CARB 2011 Scoping Plan Estimate)	509.4
2020 Emissions Target Set by AB 32 (i.e., 1990 level)	431
Reduction below Business-As-Usual necessary to achieve 1990 levels by 2020	**78.4 (15.4%) [b]**
2017 Scoping Plan Update (Note: CARB will consider adoption of the Plan at a future undetermined date)	
2030 BAU Forecast ("Reference Scenario" which includes 2020 GHG reduction policies and programs)	392
2030 Emissions Target Set by HSC Division 25.5 (i.e., 40% below 1990 Level)	260
Reduction below Business-As-Usual Necessary to Achieve 40% below 1990 Level by 2030	**132 (33.7%) [c]**

$MMTCO_2e$ = million metric tons of carbon dioxide equivalents
[a] 596 – 427 = 169 / 596 = 28.4%
[b] 509.4 – 431 = 78.4 / 509.4 = 15.4%
[c] 392 – 260 = 132 / 392 = 33.7%

SOURCE: CARB 2011; CARB 2014a; CARB 2017e

Continuation of the Cap-and-Trade regulation (or carbon tax) is expected to cover approximately 34 to 76 percent of the 2030 reduction obligation (CARB, 2017e). Under the Proposed Scenario, the short-lived GHG strategy is expected to cover approximately 13 to 26 percent. The Renewables Portfolio Standard with 50 percent renewable electricity by 2030 is expected to cover approximately 10 to 11 percent. The mobile source strategy and sustainable freight action plan includes maintaining the existing vehicle GHG emissions standards, increasing the number of zero emission vehicles and improving the freight system efficiency, and is expected to cover approximately 9 to 11 percent. The doubling of the energy efficiency savings, including demand-response flexibility for 10 percent of residential and commercial electric space heating, water heating, air conditioning and refrigeration, requires the CEC in collaboration with the California Public Utilities Commission (CPUC) to establish the framework for the energy savings target setting. The CEC has proposed a schedule for establishing this framework and target setting by November 2017, which will outline the necessary actions that will need to occur in future years (CEC, 2016). The CEC states that workforce education and training institutions will be required to engage the building industry, map industry priorities for efficiency to major occupations that will provide services, identify workforce competency gaps, and quantify the work needed to build a workforce to implement high-quality efficiency projects at scale (CEC, 2016). Under the Proposed Scenario, CARB expects that the doubling of the energy efficiency savings by 2030

would cover approximately 7 to 8 percent of the 2030 reduction obligation. The other strategies would be expected to cover the remaining percentage of the 2030 reduction obligation.

California Assembly Bill No. 1493 (AB 1493, Pavley), (Chapter 200, Statutes of 2002)

In response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 (Chapter 200, Statutes of 2002), enacted on July 22, 2002, required CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles whose primary use is non-commercial personal transportation manufactured in and after 2009. In setting these standards, CARB must consider cost effectiveness, technological feasibility, economic impacts, and provide maximum flexibility to manufacturers (CARB, 2005).

As discussed previously, the USEPA and USDOT have adopted federal standards for model year 2012 through 2016 light-duty vehicles. In light of the USEPA and USDOT standards, California - and states adopting California emissions standards - have agreed to defer to the proposed national standard through model year 2016. The 2016 endpoint of the federal and state standards is similar, although the federal standard ramps up slightly more slowly than required under the state standard. The state standards (called the Pavley standards) require additional reductions in CO_2 emissions beyond model year 2016 (referred to as Pavley Phase II standards).[2] As noted above, the USEPA and USDOT have adopted GHG emission standards for model year 2017 through 2025 vehicles (USEPA, 2012). These standards are slightly different from the Pavley Phase II standards, but the State of California has agreed not to contest these standards, in part due to the fact that while the national standard would achieve slightly lower reductions in California, it would achieve greater reductions nationally and is stringent enough to meet state GHG emission reduction goals (CARB, 2017b). On November 15, 2012, CARB approved an amendment that allows manufacturers to comply with the 2017-2025 national standards to meet state law.

Executive Order S-01-07

Executive Order S-01-07 was enacted by the Governor on January 18, 2007. The order mandates the following: (1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and (2) that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established in California. In September 2015, CARB approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In the proposed 2017 Climate Change Scoping Plan Update, CARB's preferred recommendation includes increasing the stringency of the LCFS by reducing the carbon intensity of transportation fuels by 18 percent by 2030, up from the current target of 10 percent by 2020 (CARB, 2017a). In April 2017, the LCFS was brought before the Court of Appeal challenging the analysis of potential nitrogen dioxide impacts from biodiesel fuels. The Court directed CARB to conduct an analysis of nitrogen dioxide impacts from biodiesel fuels and froze the carbon intensity targets for diesel and

[2] On March 24, 2017, CARB voted unanimously to uphold the State's model year 2017-2025 cars and light truck emissions standards. See: California Air Resources Board, CARB finds vehicle standards are achievable and cost-effective, March 24, 2017. Available at: https://www.arb.ca.gov/newsrel/newsrelease.php?id=908. Accessed May 2017.

biodiesel fuel provisions at 2017 levels until CARB has completed this analysis, which CARB has indicated is expected to occur in 2018 (Biodiesel Magazine, 2017).

Senate Bill 375 (SB 375, Steinberg) (Chapter 728, Statutes of 2008)

In September 2008, Senate Bill (SB) 375 established mechanisms for the development of regional targets for reducing passenger vehicle GHG emissions. In September 2010, CARB adopted the vehicular GHG emissions reduction targets that had been developed in consultation with the metropolitan planning organizations (MPOs); the targets require a seven to eight percent reduction by 2020 and between 13 to 16 percent reduction by 2035 for each MPO. SB 375 recognizes the importance of achieving significant GHG reductions by working with cities and counties to change land use patterns and improve transportation alternatives. Through the SB 375 process, MPOs, such as the San Diego Association of Governments (SANDAG) are required to work with local jurisdictions in the development of sustainable communities strategies (SCS) designed to integrate development patterns and the transportation network in a way that reduces GHG emissions while meeting housing needs and other regional planning objectives. SANDAG's reduction target for per capita vehicular emissions is seven percent by 2020, and 13 percent by 2035 from a base year of 2005 (CARB, 2010).

Title 24, Building Standards Code and CALGreen Code

The California Energy Commission first adopted the Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the state. Although not originally intended to reduce GHG emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods.

Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to "improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality." (CBSC, 2010) The CALGreen Code is not intended to substitute for or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission. When the CALGreen Code went into effect in 2009, compliance through 2010 was voluntary. As of January 1, 2011, the CALGreen Code is mandatory for all new buildings constructed in the state. The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design and overall environmental quality (CBSC, 2010). The CALGreen Code was most recently updated in 2016 to include new mandatory measures for residential as well as nonresidential uses; the new measures took effect on January 1, 2017 (17 CCR §§ 95800 to 96023).

Renewables Portfolio Standard

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the State's Renewables Portfolio Standard to 33 percent renewable power by 2020. Pursuant to Executive Order S-21-09, CARB was also preparing regulations to supplement the Renewables Portfolio Standard with a Renewable Energy Standard that will result in a total renewable energy requirement for utilities of 33 percent by 2020. But on April 12, 2011, Governor Jerry Brown signed SB X1-2 to increase California's Renewables Portfolio Standard to 33 percent by 2020. SB 350 (Chapter 547, Statues of 2015) further increased the Renewables Portfolio Standard to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. SB 350 was signed into law on October 7, 2015.

California Green Building Standard Code

In January 2011, the 2010 CALGreen became effective. Building off of the initial 2008 California Green Building Code, the 2010 CALGreen Code represents a more stringent building code that requires, at a minimum, that new buildings and renovations in California meet certain sustainability and ecological standards. The 2010 CALGreen Code has mandatory Green Building provisions for all new residential buildings that are three stories or fewer (including hotels and motels) and all new non-residential buildings of any size that are not additions to existing buildings.

In January 2017, the 2016 California Building Standards Code became effective that also included the latest 2016 CALGreen Code. The mandatory provisions of the code are anticipated to reduce 3 MMT of GHG emissions by 2020, reduce water use by 20 percent or more, and divert 50 percent of construction waste from landfills. In January 2017, the 2016 California Energy Code (Title 24, Part 6) became effective, which is also part of the CALGreen Code (Title 24, Part 11, Chapter 5.2).

Regional

Regional Transportation Plan/Sustainable Communities Strategies

In October 2015, SANDAG adopted its 2050 Regional Transportation Plan (San Diego Forward: The Regional Plan), which builds on the previous SCS and directs investments within existing urbanized areas in order to encourage growth within existing higher density urban boundaries and discourage urban and suburban sprawl. The goals of the SCS include increasing the number of homes and jobs near transit, reducing transit travel time, and achieve economic benefits due to reduced congestion and the construction of transportation infrastructure. Implementation of the 2050 SCS is projected to reduce roadway congestion during peak travel times by nearly half, from 9.1 percent in the No Build alternative to 5.1 percent under the Plan. Key measures to achieve these reductions include development of Managed Lane networks that will serve many modes of transportation and that could help smooth the flow of traffic between passenger vehicles and freight trucks and other vehicles that transport goods throughout the region.

SANDAG's quantification of GHG emissions reductions from the 2050 SCS indicates that the plan would result in per capita emissions reductions of 15 percent by 2020 and 21 percent by 2035 from a base year of 2005. CARB prepared a technical evaluation of SANDAG's adopted SCS, which affirms that the SCS, if implemented, would meet the CARB-adopted per capita GHG emissions reduction targets for SANDAG of seven percent reduction in 2020 and 13 percent reduction in 2035 from a base year of 2005 (CARB, 2015).

Local

San Diego County Climate Action Plan

In March 2016, the County of San Diego adopted a Climate Action Plan (CAP) Public Outreach and Engagement Plan that summarizes the County's plan to engage the public and other interested parties in the preparation of a CAP and associated EIR. The Public Outreach and Engagement Plan outlines the five steps the County is planning to undertake to complete the CAP, which includes conducting a baseline GHG emissions inventory and future forecasts, establishing an emissions reduction target, development of CAP policies and measures, implementation of CAP policies and measures, and progress monitoring and verification. The Planning Commission received a presentation on the status of the CAP on June 9, 2017. The public review period for the Draft CAP and EIR is from August 10, 2017 through September 25, 2017 after which time the County will consider and respond to all comments received on the Draft CAP and EIR.

Fallbrook Community Plan

While the Bonsall Unified School District (BUSD) is not required to comply with San Diego County General Plan and zoning requirements, the following discussion is provided to document the project's consistency with San Diego County General Plan land use policies and zoning requirements. The project site is located within the Fallbrook Community Plan area in unincorporated San Diego County. The following Fallbrook Community Plan goals and policies are applicable to the project.

> **Goal COS 1.5:** Land use plans and policies that protect and improve the air quality of the Fallbrook community.
>
> > **Policy COS 1.5.1:** Support programs that maintain and improve air quality, such as tree planting and development of light agriculture.
> >
> > **Policy COS 1.5.2:** Discourage industrial uses that are detrimental to air quality.

County of San Diego General Plan

The project site is located within the Fallbrook Community Plan area in unincorporated San Diego County. The following San Diego County General Plan goals and policies are applicable to the project.

> **Goal COS-4: Water Management.** A balanced and regionally integrated water management approach to achieve the long-term viability of the County's water quality and supply.

Policy COS-4.1: Water Conservation. Require development to reduce the waste of potable water through use of efficient technologies and conservation efforts that minimize the County's dependence on imported water and conserve groundwater resources.

Policy COS-4.2: Drought-Efficient Landscaping. Require efficient irrigation systems and in new development encourage the use of native plant species and non-invasive drought tolerant/low water use plants in landscaping.

Goal COS-14: Sustainable Land Development. Land use development techniques and patterns that reduce emissions of criteria pollutants and GHGs through minimized transportation and energy demands, while protecting public health and contributing to a more sustainable environment.

Policy COS-14.1: Land Use Development Form. Require that development be located and designed to reduce vehicular trips (and associated air pollution) by utilizing compact regional and community-level development patterns while maintaining community character.

Policy COS-14.3: Sustainable Development. Require design of residential subdivisions and nonresidential development through "green" and sustainable land development practices to conserve energy, water, open space, and natural resources.

Policy COS-14.5: Building Siting and Orientation in Subdivisions. Require that buildings be located and oriented in new subdivisions and multi-structure non-residential projects to maximize passive solar heating during cool seasons, minimize heat gains during hot periods, enhance natural ventilation, and promote the effective use of daylight.

Policy COS-14.7: Alternative Energy Sources for Development Projects. Encourage development projects that use energy recovery, photovoltaic, and wind energy.

Policy COS-14.8: Minimize Air Pollution. Minimize land use conflicts that expose people to significant amounts of air pollutants.

Policy COS-14.10: Low-Emission Construction Vehicles and Equipment. Require County contractors and encourage other developers to use low-emission construction vehicles and equipment to improve air quality and reduce GHG emissions.

Policy COS-14.12: Heat Island Effect. Require that development be located and designed to minimize the "heat island" effect as appropriate to the location and density of development, incorporating such elements as cool roofs, cool pavements, and strategically placed shade trees.

Policy COS-14.13: Incentives for Sustainable and Low GHG Development. Provide incentives such as expedited project review and entitlement processing for developers that maximize use of sustainable and low GHG land development practices in exceedance of State and local standards.

Goal COS-15: Sustainable Architecture and Buildings. Building design and construction techniques that reduce emissions of criteria pollutants and GHGs, while protecting public health and contributing to a more sustainable environment.

Policy COS-15.1: Design and Construction of New Buildings. Require that new buildings be designed and constructed in accordance with "green building" programs that

incorporate techniques and materials that maximize energy efficiency, incorporate the use of sustainable resources and recycled materials, and reduce emissions of GHGs and toxic air contaminants.

Policy COS-15.4: Title 24 Energy Standards. Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards.

Policy COS-15.6: Design and Construction Methods. Require development design and construction methods to minimize impacts to air quality.

Goal COS-17: Sustainable Solid Waste Management. Perform solid waste management in a manner that protects natural resources from pollutants while providing sufficient, long term capacity through vigorous reduction, reuse, recycling, and composting programs.

Policy COS-17.1: Reduction of Solid Waste Materials. Reduce greenhouse gas emissions and future land fill capacity needs through reduction, reuse, or recycling of all types of solid waste that is generated. Divert solid waste from landfills in compliance with State law.

Policy COS-17.6: Recycling Containers. Require that all new land development projects include space for recycling containers.

Policy COS-17.7: Material Recovery Program. Improve the County's rate of recycling by expanding solid waste recycling programs for residential and non-residential uses.

Goal COS-19: Sustainable Water Supply. Conservation of limited water supply supporting all uses including urban, rural, commercial, industrial, and agricultural uses.

Policy COS-19-1: Sustainable Development Practices. Require land development, building design, landscaping, and operational practices that minimize water consumption.

3.8.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to Greenhouse Gas Emissions if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (see Impact 3.8-1, below);
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (see Impact 3.8-2, below).

Emissions Generation

Amendments to Section 15064.4 of the CEQA Guidelines were adopted to assist lead agencies in determining the significance of the impacts of GHG emissions. Consistent with existing CEQA practice, Section 15064.4 gives lead agencies the discretion to determine whether to assess those emissions quantitatively or qualitatively. If a qualitative analysis is used, in addition to quantification, this section recommends certain qualitative factors that may be used in the determination of significance (i.e., extent to which the project may increase or reduce GHG emissions compared to the existing environment; whether the project exceeds an applicable

significance threshold; and extent to which the project complies with regulations or requirements adopted to implement a reduction or mitigation of GHGs). The amendments do not establish a threshold of significance; rather, lead agencies are granted discretion to establish significance thresholds for their respective jurisdictions, including looking to thresholds developed by other public agencies, or suggested by other experts, such as the California Air Pollution Control Officers Association (CAPCOA), so long as any threshold chosen is supported by substantial evidence (see Section 15064.7(c)). The California Natural Resources Agency has also clarified that the CEQA Guidelines amendments focus on the effects of GHG emissions as cumulative impacts, and that they should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see Section 15064(h)(3)) (CNRA, 2009).

Although GHG emissions can be quantified as discussed under Methodology below, CARB, SDAPCD, and the County of San Diego have not adopted project-level significant thresholds for GHG emissions that would be applicable to the project. The County of San Diego previously provided guidance and thresholds for GHG analysis; however, the County's *2016 Climate Change Analysis Guidance* was removed from their website on April 28, 2017. Updated guidelines for determining significant is pending as of August 2017.

In the absence of adopted guidance, the County recommends the use of the commercial source threshold developed by the South Coast Air Quality Management District (SCAQMD) for the proposed project.

The SCAQMD proposed a screening level of 3,000 $MTCO_2e$ per year for commercial or mixed-use residential projects under which project impacts are considered less than significant, "to achieve the same policy objective of "to achieve the same policy objective of capturing 90 percent of the GHG emissions from new development projects in the residential/commercial sectors." (SCAQMD 2008) In CAPCOA's January 2008 CEQA and Climate Change white paper, CAPCOA suggested a possible quantitative threshold option that would capture 90 percent of GHG emissions from future discretionary development projects. According to CAPCOA, the "objective was to set the emission threshold low enough to capture a substantial fraction of future residential and nonresidential development that will be constructed to accommodate future statewide population and job growth, while setting the emission threshold high enough to exclude small development projects that will contribute a relatively small fraction of the cumulative statewide GHG emissions." (CAPCOA, 2008) A 90 percent capture rate would "exclude the smallest proposed developments from potentially burdensome requirements … to mitigate GHG emissions." (CAPCOA, 2008) The SCAQMD's proposed screening level of 3,000 $MTCO_2e$ per year would meet CAPCOA's intent for the suggested quantitative threshold option. Given the lack of a formally adopted numerical significance threshold applicable to this project, the significance of the project is evaluated based on the SCAQMD's proposed screening level of 3,000 $MTCO_2e$.

Emissions Reduction Planning

CARB's AB 32 Scoping Plan is the State plan that outlines the State's strategy to achieve the 2020 GHG emissions limit. Consistency with the Scoping Plan's applicable Recommended Actions regarding energy and water efficiency would determine the project's conformance with

the plan. In addition, the SANDAG 2050 RTP/SCS is the County-wide plan that demonstrates how development patterns and the transportation network, policies, and programs will work together to achieve the GHG emission reduction targets set by the State. Consistency with the growth projections and GHG reduction strategies set forth in the SCS would determine the project's conformance with the plan.

3.8.4 Methodology

Construction Emissions

Construction of the proposed project would occur over two phases. Phase 1 is anticipated to begin in Fall of 2019 and take approximately 16 months to complete. Phase 2 is anticipated to begin in early 2023 and take approximately 13 months to complete. Construction of the proposed project would include various construction activities, including grading, building construction, paving, and architectural coating. Heavy-duty equipment used during construction would include graders, backhoes, industrial saws, rubber tired dozers, forklifts, cranes, pavers, rollers, and air compressors. Construction emissions are considered short term and temporary, but have the potential to represent a significant impact with respect to GHGs depending on the intensity and duration of equipment usage and construction activity.

The County recommends the use of the California Emissions Estimator Model (CalEEMod) for estimating GHG emissions associated with land use projects. CalEEMod incorporates the most recent version (2014) of the Emission Factors (EMFAC) and Off-Road Emissions (OFFROAD) models developed by CARB. CalEEMod estimates the emissions of CO_2, CH_4, and N_2O as well as the resulting total CO_2e emissions associated with construction-related GHG sources such as off-road construction equipment, material delivery trucks and construction worker vehicles. The GHG analysis incorporates similar assumptions as the air quality analysis for consistency (Section 3.2 of this Draft EIR). Where project-specific information was not available, CalEEMod defaults have been utilized. According to the Applicant, grading of the entire disturbed area (24.6 acres) would take approximately three months and occur at the start of Phase 1. On-site soils are anticipated to balance and no import or export of soil would be required. Construction of Phase 1 buildings, landscaping, parking, and roadways would take approximately 13 months to complete with an anticipated completion date in December 2020. Phase 2 construction is anticipated to begin early 2023 with anticipated completion in January 2024. Pursuant to SDAPCD Rule 55 regulating the generation of fugitive dust, exposed surface would be watered three times daily. Pursuant to SDAPCD Rule 67 regulating VOC content of architectural coating materials, construction architectural coatings have been limited to 150 grams per liter of VOC content. In addition, all on-site construction equipment would be Tier 3 or have emissions levels equivalent to or more stringent than Tier 3 rated engines. Therefore, the model accounts for Tier 3 engines for all off-road construction equipment. The total construction emissions for the proposed project were amortized over a 30-year period and added to its operational emission estimates. Detailed assumptions, calculations, and output files are provided in **Appendix O** of this Draft EIR.

Operational Emissions

Operational emissions of GHGs, including GHGs generated by direct and indirect sources, are estimated according to the recommended methodologies from the County. Direct sources include emissions such as vehicle trips, natural gas consumption, and landscape maintenance. Indirect sources include off-site emissions occurring as a result of the project's operations, such as electricity and water consumption and solid waste disposal. The direct and indirect emissions generated during the proposed project's operations were estimated using CalEEMod. Modeling was based on project-specific data (e.g., size and type of proposed use) and vehicle trip information from the traffic study prepared for the project (Appendix O).

The most recent CalEEMod version (2016.3.1) used in this analysis assumes Title 24 (2013) requirements for energy use and does not account for 2016 requirements. Title 24 (2016) requirements are estimated to be more restrictive than the prior Title 24 (2013) requirements for electricity, natural gas, and lighting. Therefore, a reduction in lighting and Title 24 electricity and natural gas use has been applied to account for the more restrictive 2016 requirements. Pursuant to CALGreen (2016) requirements as well as County waste diversion rates, the model accounts for a 20 percent reduction in indoor water use and 50 percent reduction in solid waste generation. The County's diversion rate in 2015 was 62 percent; therefore, a 50 percent rate for modeling purposes provides a generally conservative estimate (County of San Diego, 2016). Project design features include the installation of low flow bathroom and kitchen fixtures and water-efficient irrigation systems and have been accounted for in the model.

Detailed assumptions, calculations, and output files are provided in Appendix O of this Draft EIR.

3.8.5 Impact Analysis

Greenhouse Gas Emissions

Impact 3.8-1: The project would not generate greenhouse gas emissions, either directly or indirectly, and would not have a significant impact on the environment.

Construction Emissions

The proposed project involves construction of a new high school on approximately 48.9 acres (24.6 acres would be disturbed) in two phases. Phase 1 is anticipated to begin in late of 2019 and be operational by 2021. Phase 2 is anticipated to begin in early 2023 and be operational by 2025. Construction activities associated with the proposed project would generate pollutant emissions from the following construction activities: grading, construction workers traveling to and from project site, delivery of construction supplies to the project site, fuel combustion by on-site construction equipment, building construction, application of architectural coatings, and paving. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously at

the time. Total estimated construction-related GHG emissions for the proposed project are shown in **Table 3.8-2**.

TABLE 3.8-2
ESTIMATED TOTAL CONSTRUCTION GHG EMISSIONS

Emission Source	Estimated MT CO_2e Emissions
Phase 1	
2019	251
2020	892
Phase 2	
2023	1,370
2024	125
Total Project GHG Emissions	*2,638*
Annual Construction GHG Emissions (Amortized over 30 years)	**88 (MT/yr)**

CO_2e= carbon dioxide equivalent; MT =metric tons; MT/yr = metric tons per year.

SOURCE: ESA 2017.

As shown in Table 3.8-2, the proposed project's total estimated GHG emissions during construction would be approximately 2,638 $MTCO_2e$, which would equal approximately 88 $MTCO_2e$ per year when amortization over 30 years.

Operational Emissions

Area and indirect sources associated with the operation of the proposed high school would primarily result from electricity and natural gas consumption, water transport (the energy used to pump water to and from the project site), and solid waste generation. GHG emissions from water transport are also indirect emissions resulting from the energy required to transport water from its source. In addition, the proposed high school would generate mobile source emissions from motor vehicle trips generated by high school staff, students, and parents.

The estimated operational GHG emissions resulting from project implementation are shown in **Table 3.8-3**. Additionally, the proposed project's amortized construction-related GHG emissions from Table 3.8-2 are added to the operational emissions estimate in order to determine the proposed project's total annual GHG emissions.

As shown in Table 3.8-3, the proposed project's total annual GHG emissions would be approximately 1,932 $MTCO_2e$ per year (detailed calculations are included in Appendix O of this Draft EIR). As discussed previously, CARB, SDAPCD, and the County of San Diego have not adopted project-level significant thresholds for GHG emissions that would be applicable to the project. In the absence of any adopted threshold, the County recommends the commercial threshold of 3,000 $MTCO_2e$ developed by SCAQMD. The proposed project's estimated total emissions of 1,932 $MTCO_2e$ developed would not exceed the annual threshold of 3,000 $MTCO_2e$. Therefore, impacts would be less than significant and no mitigation is required.

TABLE 3.8-3
ESTIMATED CONSTRUCTION AND BUILD OUT OPERATIONS GHG EMISSIONS

Emission Source	Estimated Emissions CO_2e (MT/yr)
Construction Emissions	
Annual Mitigated Construction (Amortized over 30 years)	88
Operational Emissions	
Area Sources	<1
Energy Consumption	247
Mobile Sources	1,471
Solid Waste	70
Water Consumption	56
Total Annual GHG Emissions	**1,932**

CO_2e= carbon dioxide equivalent; MT/yr = metric tons per year.

SOURCE: ESA 2017.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less Than Significant

Emissions Reduction Planning

Impact 3.8-2: The project would not conflict with any applicable plan, policy, regulation, or recommendation of an agency adopted for the purpose of reducing the emissions of GHGs.

In addition to the energy efficiency requirements and project design features discussed in Section 3.8.4, *Methodology*, the proposed project would implement the following project design features. The potential GHG emissions reductions achieved by implementing the following project design features have not been quantified and are not accounted for in total project emissions shown in Table 3.8-3. Therefore, project-related GHG emissions would be further reduced.

- The project proposes to install light emitting diode (LED) lighting for interior as well as exterior spaces. According to the U.S. Department of Energy, the use of LED lighting would use at least 75 percent less energy than traditional incandescent lighting (U.S. Dept. of Energy, 2017).
- Low voltage lighting control with room occupancy sensors would be provided in all areas and exterior lighting would include time clock controls. Exterior lights would be equipped with dimmers that would allow lighting to adjust based on the measured footcandle to provide the appropriate amount of lighting. These design features would reduce lighting energy consumption by ensuring that lights are not left on when rooms are not occupied and that exterior lighting is not at full brightness when natural light is still available.

- There is the potential for installation of solar panels on site if funding is able to be secured. Potential installation of solar panels would reduce electricity demand from SDG&E and would contribute to the state-wide goal to obtain 50 percent of electricity from renewable sources.
- Artificial turf is proposed for one of the two sports fields. Installation of artificial turf would reduce water required for outdoor landscaping and would reduce the energy required to convey water to the project site.

Project operational-related GHG emissions would decline in future years as emissions reductions from the State's Cap-and-Trade program are fully realized. Emissions reductions from the project's two highest GHG-emitting sources, mobile and electricity, would occur over the next decade, and beyond, ensuring that the project's total GHG emissions would be further reduced. Emissions from electricity would decline as utility providers, including SDG&E, meet their Renewables Portfolio Standard obligations to provide 50 percent of their electricity from renewable electricity sources by 2030 consistent with SB 350, which would achieve additional reductions in emissions from electricity demand although the actual reduction will depend on the mix of fossil fuels that SDG&E will replace with renewables and the relative CO_2 intensities of those fossil fuels. Emissions from mobile sources would also decline in future years as older vehicles are replaced with newer vehicles resulting in a greater percentage of the vehicle fleet meeting more stringent combustion emissions standards, such as the model year 2017-2025 Pavley Phase II standards.

AB 32 Climate Change Scoping Plan

Out of the Recommended Actions contained in CARB's Scoping Plan, the actions that are most applicable to the project would be Actions E-1 (increased Utility Energy efficiency programs including more stringent building and appliance standards), GB-1 (Green building), and W-1 (Increased water use efficiency). CARB Scoping Plan Action E-1, together with Action GB-1 (Green Building), aims to reduce electricity demand by increased efficiency of Utility Energy Programs and adoption of more stringent building and appliance standards, while Action W-1 aims to promote water use efficiency. The proposed project would incorporate the use of LED lighting and pursue funding for solar photovoltaic panels to supply the school with renewable energy, and utilize water-efficient fixtures and landscape irrigation systems.

The proposed project would be designed to comply with the CALGreen Code to ensure that the proposed project uses resources (energy, water, etc.) efficiently and significantly reduce pollution and waste. As such, compliance with these requirements would result in reductions in energy and water consumption equal to or in excess of the CALGreen Code requirements. Therefore, the proposed project would be consistent with the Scoping Plan measures through incorporation of stricter building and appliance standards.

SANDAG 2050 RTP/SCS

In the 2050 RTP/SCS, SANDAG provides regional growth management strategies that target per capita GHG reduction from passenger vehicles and light duty trucks in San Diego County. The SCS incorporates local land use development projections and circulation networks in city and county general plans. In SANDAG's 2050 Regional Growth Forecast, SANDAG identified

employment growth in unincorporated areas of the County to increase from 137,264 in 2008 to 192,077 in 2050, an increase of 54,813 jobs by 2050 (SANDAG, 2011). An employment increase of approximately 60 jobs at the high school at build out (2025) would be less than one percent of the total anticipated increase in the County. Therefore, the projected increase in employment from the proposed project would not hinder the SCS' vehicular travel-related GHG emissions reduction per capita goal.

In addition, the SCS outlines five major strategies to help reduce GHG emissions, including housing and job growth in urban areas with existing transportation and transit infrastructure. As stated in Chapter 2, *Project Description*, objectives of the project include accommodating the anticipated growth in the BUSD high student population over the next 20 years and minimizing required student transportation and staff commuting distances by centrally locating the high school campus within BUSD. Because the project would construct a high school that is centrally located within BUSD and situated in an area with predominantly residential uses within walking distance, students who reside within proximity of the high school would be able to access the project via bicycle or foot and reduce vehicle miles traveled associated student pickup/drop-off and student/staff trips, which would help achieve the goals consistent with the SCS. Additionally, students residing in eastern Oceanside and the Pala Reservation would be bused to the high school, reducing vehicle miles that would otherwise be generated by student drop-off/pick-up. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation and impacts to greenhouse gas emissions would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less Than Significant

3.8.6 Cumulative Impact Analysis

Worldwide man-made emissions of GHGs were approximately 49,000 $MMTCO_2e$ in 2010 including ongoing emissions from industrial and agricultural sources and emissions from land use changes (e.g., deforestation) (IPC 2014). Emissions of CO_2 from fossil fuel use and industrial processes account for 65 percent of the total while CO_2 emissions from all sources accounts for 76 percent of the total. Methane emissions account for 16 percent and N_2O emissions for 6.2 percent. In 2015, the United States was the world's second largest emitter of carbon dioxide at 5,150 MMT (China was the largest emitter of carbon dioxide at 10,700 MMT) (PBL Netherlands Environmental Assessment Agency and the European Commission Joint Research Center, 2016).

CEQA requires that lead agencies consider the cumulative impacts of GHG emissions from even relatively small (on a global basis) increases in GHG emissions. Small contributions to this cumulative impact (from which significant effects are occurring and are expected to worsen over time) may be potentially considerable and therefore significant. In the case of global climate change, the proximity of the project to other GHG emission generating activities is not directly relevant to the determination of a cumulative impact because climate change is a global condition. As stated above, GHG emission impacts are, by their very nature cumulative, as both the California Natural Resources Agency and CAPCOA have recognized (CAPCOA, 2008).

Therefore, an analysis of a project's GHG emission impacts also serves as a cumulative impact assessment.

Although HSC Division 25.5 sets a statewide target for statewide 2020 and 2030 GHG emission levels, its implementing tools (e.g., CARB's *Climate Change Scoping Plan*) make clear that the reductions are not expected to occur uniformly from all sources or sectors. CARB has set targets specific to the transportation sector (land use-related transportation emissions), for example, and under SB 375, SANDAG must incorporate these GHG-reduction goals into its Regional Transportation Plan and demonstrate that its Sustainable Communities Strategy is consistent with the Regional Housing Needs Assessment. One of the goals of this process is to ensure that the efforts of State, regional and local planning agencies accommodate the contemporaneous increase in population and employment with a decrease in overall GHG emissions. For example, adopting zoning designations that reduce density in areas which are expected to experience growth in population and housing needs, is seen as inconsistent with anti-sprawl goals of sustainable planning. Although development under a reduced density scenario would result in lower GHG emissions from the use of that individual parcel of land compared to what is currently or hypothetically allowed (by creating fewer units and fewer attributable vehicle trips), total regional GHG emissions would likely fail to decrease at the desired rate or, worse, would increase if regional housing and employment needs of an area were then met with a larger number of less-intensive development projects. Therefore, it is not simply a cumulative increase in regional development or the resultant GHG emissions that potentially threatens GHG reduction goals, but the configuration and design of that development.

With implementation of good planning policies, the land use sector can accommodate growth and still be consistent with statewide plans to reduce GHG emissions. To that end, various agencies are required to develop programs to guide future building and transportation development toward minimizing resource consumption and reducing resultant pollution. As discussed above, the County has adopted the CAL Green Code. Additionally, the County has adopted a Green Building Program that includes incentives programs to promote green building design and construction to minimize and reduce GHG emissions.

The project's design and location would be consistent with applicable GHG reduction strategies recommended by the County, region, and State. In addition, implementation of additional project design features not accounted for in emissions modeling would exceed minimum regulatory requirements and further reduce emissions. The project would support and be consistent with relevant and applicable GHG emission reduction strategies in SANDAG's RTP/SCS.

Furthermore, the overwhelming majority of project-related GHG emissions are from two highly regulated source sectors, including electricity generation and transportation fuels. These sectors are already covered entities under the Renewables Portfolio Standard and the Cap-and-Trade Program and as such would be reduced sector-wide in accordance with the GHG reduction targets of HSC Division 25.5, in addition to the previously discussed GHG emissions reductions from the project-specific energy efficiency design features, and substantial VMT-reducing land use characteristics of the project. As indicated above, the CEQA Guidelines were amended in response to SB 97. In particular, the CEQA Guidelines were amended to specify that compliance

with a GHG emissions reduction program renders a cumulative impact insignificant. Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project (14 CCR § 15064(h)(3)). To qualify, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency (14 CCR § 15064(h)(3)). Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, [and] plans or regulations for the reduction of greenhouse gas emissions" (emphasis added) (14 CCR § 15064(h)(3)). Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of non-significance for GHG emissions if a project complies with the California Cap-and-Trade Program or other regulatory schemes to reduce GHG emissions.

Given that the project would generate GHG emissions consistent with applicable reduction plans and policies, and given that GHG emission impacts are cumulative in nature, the project's incremental contribution to cumulatively significant GHG emissions would be less than cumulatively considerable, and impacts would be less than significant.

3.8.7 References

Anders, Scott J. and Nilmini Silva-Send, 2013. San Diego County Updated Greenhouse Gas Inventory – Executive Summary, University of San Diego School of Law, March. Available at: http://catcher.sandiego.edu/items/usdlaw/EPIC-GHG-2013.pdf, accessed May 2017.

Biodiesel Magazine, 2017. *Court Rules against CARB on LCFS, preserves 2017 status quo*. April 17, 2017

California Environmental Protection Agency (CalEPA). 2010. *California Climate Action Team Report to the Governor and the Legislature*. 2010.

———, 2006. *California Climate Action Team Report to the Governor and the Legislature*. 2006.

California Air Pollution Control Officers Association (CAPCOA), 2008. *CEQA & Climate change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. 2008.

CARB, 2017a. AB 32 Scoping Plan. Available at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm, accessed May 2017.

———, 2017b. Advanced Clean Cars Summary. Available at: http://www.arb.ca.gov/msprog/clean_cars/acc%20summary-final.pdf, accessed May 2017.

———, 2017c. California Greenhouse Gas Emission Inventory 2017 Edition. Available at: http://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed May 2017.

———, 2017d. Notice of Postponement – Public Meeting for the 2017 Climate Change Scoping Plan Update. Available at: https://www.arb.ca.gov/lispub/rss/displaypost.php?pno=10383, accessed May 2017.

———, 2017e. The 2017 Climate Change Scoping Plan Update. Available at: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf, accessed May 2017.

———, 2015. *Technical Evaluation of the Greenhouse Gas Emissions Reduction Quantification for the San Diego Association of Governments' SB 375 Sustainable Communities Strategy*. December 2015.

———, 2014a. 2020 Business-as-Usual (BAU) Emissions Projection, 2014 Edition. Available at: https://www.arb.ca.gov/cc/inventory/data/bau.htm, accessed May 2017.

———, 2014b. *First Update to the Climate Change Scoping Plan: Building on the Framework.* May 2014.

———, 2011. *Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (FED), Attachment D.* August 19, 2011.

———, 2010. *Proposed SB 375 Greenhouse Gas Targets: Documentation of the Resulting Emission Reductions based on MPO Data*, August 9, 2010.

———, 2009. Climate Change Scoping Plan: A Framework for Change. Available at: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf; accessed May 2017.

———, 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. 2017.

———, 2005. *Regulations to Control Greenhouse Gas Emissions from Motor Vehicles, Final Statement of Reasons.* Available at: https://www.arb.ca.gov/regact/grnhsgas/fsor.pdf, accessed July 2017.

California Building Standards Commission., 2017. CALGreen (Part 11 of Title 24). Available at: http://www.bsc.ca.gov/Home/CALGreen.aspx, accessed June 2017.

———, 2010. *2010 California Green Building Standards Code.*2010.

California Energy Commission (CEC), 2016. 2016 Existing Buildings Energy Efficiency Plan Update. Available: http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficency_Plan_Update_Deceber_2016_Thi.pdf, accessed July 2017.

California Natural Resources Agency (CNRA), 2009. *Final Statement of Reasons for Regulatory Action*. December 2009.

County of San Diego, 2016. Strategic Plan to Reduce Waste. Available at: http://www.sandiegocounty.gov/dpw/recycling/plan.html, accessed August 2017.

Governor's Office of Planning and Research (OPR), 2008. *Technical Advisory – CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review.* 2008.

Intergovernmental Panel on Climate Change (IPCC), 2014. *Fifth Assessment Report Synthesis*. 2014.

———, 2001. Climate Change 2001: Working Group I: The Scientific Basis. Available at: http://www.grida.no/climate/ipcc%5Ftar/wg1/032.htm#f5, accessed May 2017.

Kunzman Associates, Inc., 2017. *Bonsall High School Revised Traffic Impact Analysis.* August 7, 2017.

PBL Netherlands Environmental Assessment Agency and the European Commission Joint Research Center, 2016. Trends in Global CO_2 Emissions 2016 Report. Available at: http://www.pbl.nl/en/publications/trends-in-global-co2-emissions-2016-report, accessed August 2017.

South Coast Air Quality Management District, 2008. Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, Appendix E, p. 2-6. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf?sfvrsn=2, accessed May 2017.

U.S. Department of Energy, 2017. LED Lighting. Available at: https://energy.gov/energysaver/led-lighting, accessed August 2017.

United States Environmental Protection Agency (USEPA), 2012. EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100EZ7C.PDF?Dockey=P100EZ7C.PDF, accessed June 2017.

WeatherCurrents.com (WC), 2017. Vista 2 NNE California (049378) Period of Record Monthly Climate Summary. Available at: http://www.wrcc.dri.edu/summary/Climsmsca.html, accessed August 2017.

3.9 Hydrology and Water Quality

The following section describes the existing hydrology and water quality setting and the potential of the proposed project to impact hydrology and water quality. The Preliminary Geotechnical Engineering and Geologic Hazard Report prepared for the proposed project (see Appendix M of this Draft EIR) and the Hydrology and Water Quality Study prepared for the proposed project (see **Appendix S** of this Draft EIR), in addition to published information from multiple governmental and private agencies was consulted for preparation of the environmental and regulatory setting discussions.

3.9.1 Environmental Setting

Regional Hydrology

The proposed project site is located within the San Luis Rey River Watershed (San Diego County, 2011), which is located in the northwestern portion of San Diego County and is 562 square miles in area. The San Luis Rey River is the principle waterbody in the Watershed, flowing from east to west from its headwaters in the Palomar and Hot Springs Mountains to its discharge point in the Pacific Ocean near the City of Oceanside Harbor. More than half of the land in the watershed is undeveloped; residential and agricultural use accounts for 15% and 14% of land use in the watershed, respectively (MRCD, 2017).

Local Hydrology and Water Quality

There are no named drainages on the project site. The majority of the site area topography is sloped ranging from 0 to 10percent. The existing site is divided in three major drainage basins. Runoff from the western portion of the site (Drainage Basins A, B, C, & D) flows to the west. The southern end of the site (Drainage Basins E & F) flows to the southern property boundary. Runoff from the eastern portion of the site (Drainage Basins G, H, & I) flows northwest to Grid Road. See **Figure 3.9-1** for the existing condition hydrology map.

The San Diego Regional Water Quality Control Board discloses beneficial uses in its Water Quality Control Plan (or Basin Plan). The beneficial uses of the San Luis Rey River include: municipal, agricultural, industrial process and supply, freshwater habitat, power, contact recreation, non-contact recreation, warm water habitat, cold water habitat, and wildlife habitat. The beneficial uses of the mouth of the San Luis Rey River include: contact recreation, non-contact recreation, wildlife habitat, marine habitat, rare and endangered species habitat and migratory habitat (SDRWQCB, 1997).

The project site drains into the lower San Luis Rey River, which is defined as the reach of river west of Interstate 15. This reach has several water quality impairments identified by the State Regional Water Quality Control Board (SWRCB). For each of these impairments, a total maximum daily load (TMDL) has been or will be established. A TMDL is the calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant (USEPA, 2017). A TMDL for indicator bacteria (enterococcus and fecal coliform) was passed for the entire San Diego

region that includes load reduction requirements for the Lower San Luis Rey River hydrologic area (SWRCB, 2010). Water quality impairments, their potential sources, and their past or expected TMDL completion date are listed in **Table 3.9-1**.

TABLE 3.9-1
LOWER SAN LUIS REY RIVER WATER QUALITY IMPAIRMENTS, SOURCES AND TMDLS

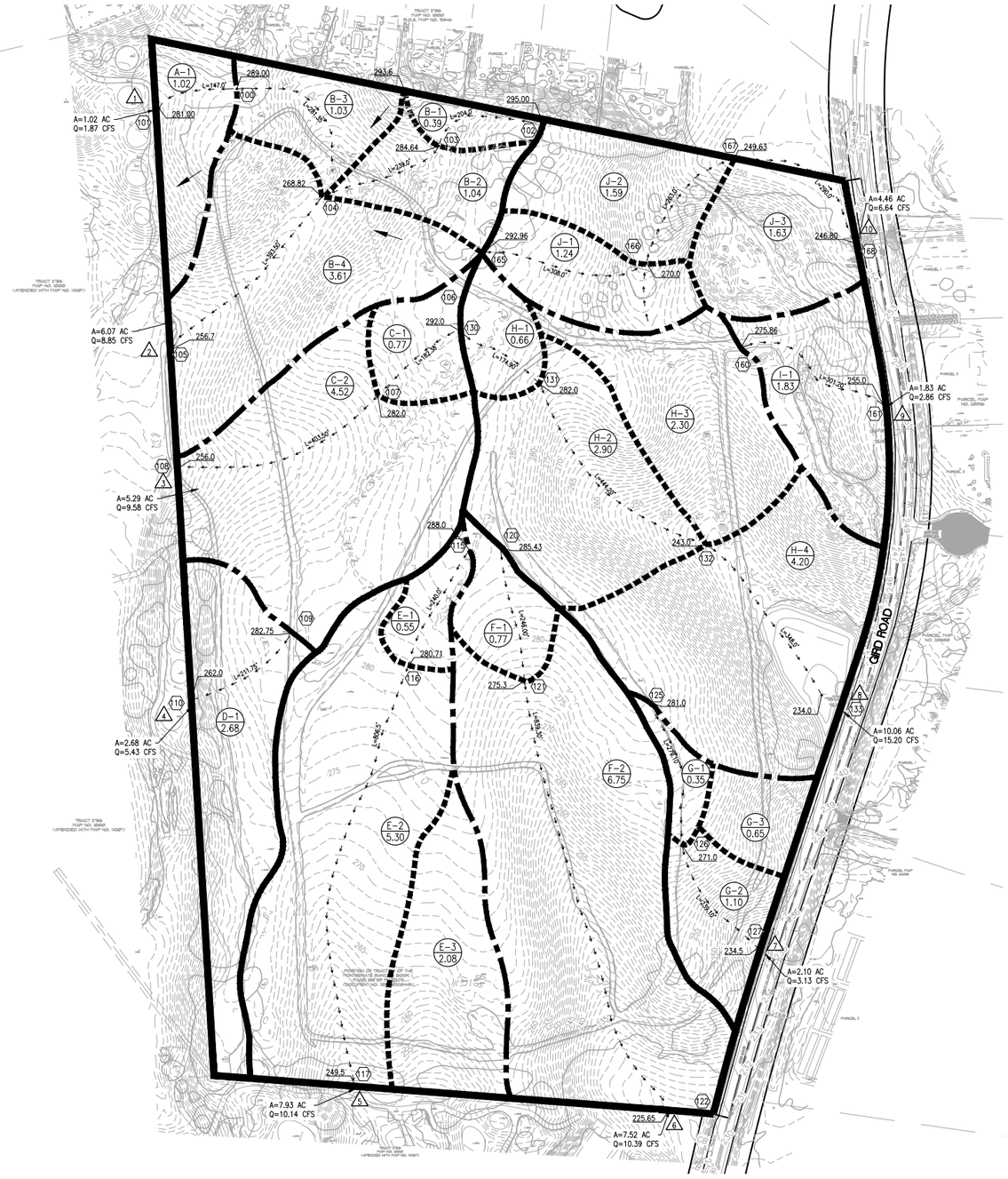
Impairment	Potential Sources	TMDL Completion Date
Chloride	Unknown nonpoint sources, unknown point sources, urban runoff/storm sewers	2019
Enterococcus	Unknown nonpoint source, unknown point source	2010
Fecal Coliform	Unknown nonpoint source, unknown point source, urban runoff/storm sewers	2010
Phosphorus	Unknown nonpoint source, unknown point source, urban runoff/storm sewers	2021
Total dissolved solids	Flow regulation/modification, surface mining, natural sources, golf course activities, agriculture storm runoff, industrial point sources, urban runoff/storm sewer	2019
Total Nitrogen as N	Unknown point source, unknown nonpoint source, urban runoff/storm sewer	2021
Toxicity	Unknown point source, unknown nonpoint source, urban runoff/storm sewer	2021

SOURCE: SWRCB 2011; SWRCB 2010

Groundwater

The project site is underlain by the San Luis Rey Valley Groundwater Basin, which is located along the coast near Oceanside and extends inland along the San Luis Rey River, which drains the valley overlying the Basin (DWR, 2016a). The Basin is generally bounded by the consolidated bedrock formations which surround the alluvial valley. The Basin is recharged by imported irrigation water applied on upland areas and by storm-flow in the San Luis Rey River and its tributaries. Groundwater moves westward in the Basin's alluvial aquifer towards the Pacific Ocean. As of 2004, portions of the Basin reflected impaired water quality; nitrates, inorganics, volatile organic compounds, semi-volatile organic compounds, and radiological substances. (DWR, 2004).

Water levels in the basin declined drastically in the 1950s and 1960s due to groundwater development and over pumping. After obtaining imported water sources, groundwater levels have risen to near pre-development levels and averages range from 0 to 20 feet below land surface (DWR, 2004). The San Luis Rey Valley Groundwater Basin is not on the list of groundwater basins identified as in a state of critical overdraft (DWR, 2016b). Groundwater was encountered onsite at depths of 28.2 feet in the site's northeast corner and10.5 feet in the centered eastern portion of the site (Leighton, 2016).



LEGEND

LEGEND	SYMBOL
OUTER BASIN BOUNDARY	
MAJOR BASIN BOUNDARY	
MINOR BASIN BOUNDARY	
EXISTING STORM DRAIN	SD
EXISTING CONTOUR	XXX
FLOW DIRECTION	
FLOW PATH	
FLOW LENGTH	L=XXX.X'
NODE/CONTOUR ELEVATION	306.4 TG 301.3 IE
HYDROLOGY NODE	200
ANALYSIS/DISCHARGE POINT	1
DRAINAGE BASIN MARKER & AREA (AC)	A-3 X.XX

50 0 100 200
SCALE IN FEET

D160855.00

SOURCE: BWE

Bonsall High School / BUSD

Figure 3.9-1
Existing Hydrology

ESA

This page intentionally left blank

Flooding

The Federal Emergency Management Agency (FEMA) defines areas with a one percent chance annually to experience flooding; these areas are defined as being within the 100-year flood zone. FEMA has published flood insurance rate maps (FIRMs) showing these flood zones. According to FIRM No. 06073C0480G, the proposed project is not located within the 100-year flood zone (FEMA, 2012). **Figure 3.9-2** shows the project site's location with respect to nearby 100-year flood zone areas.

There are two dams within the vicinity of the project site. Lake Henshaw was created by the construction of a dam near the headwaters of the San Luis Rey River (Jones, 2013). Red Mountain Reservoir was originally built as an emergency source of drinking water (Pfingsten, 2007). Figure 3.9-2 shows the project location relative to existing dam inundation areas for these two reservoirs; the project site is not located within a potential dam inundation area.

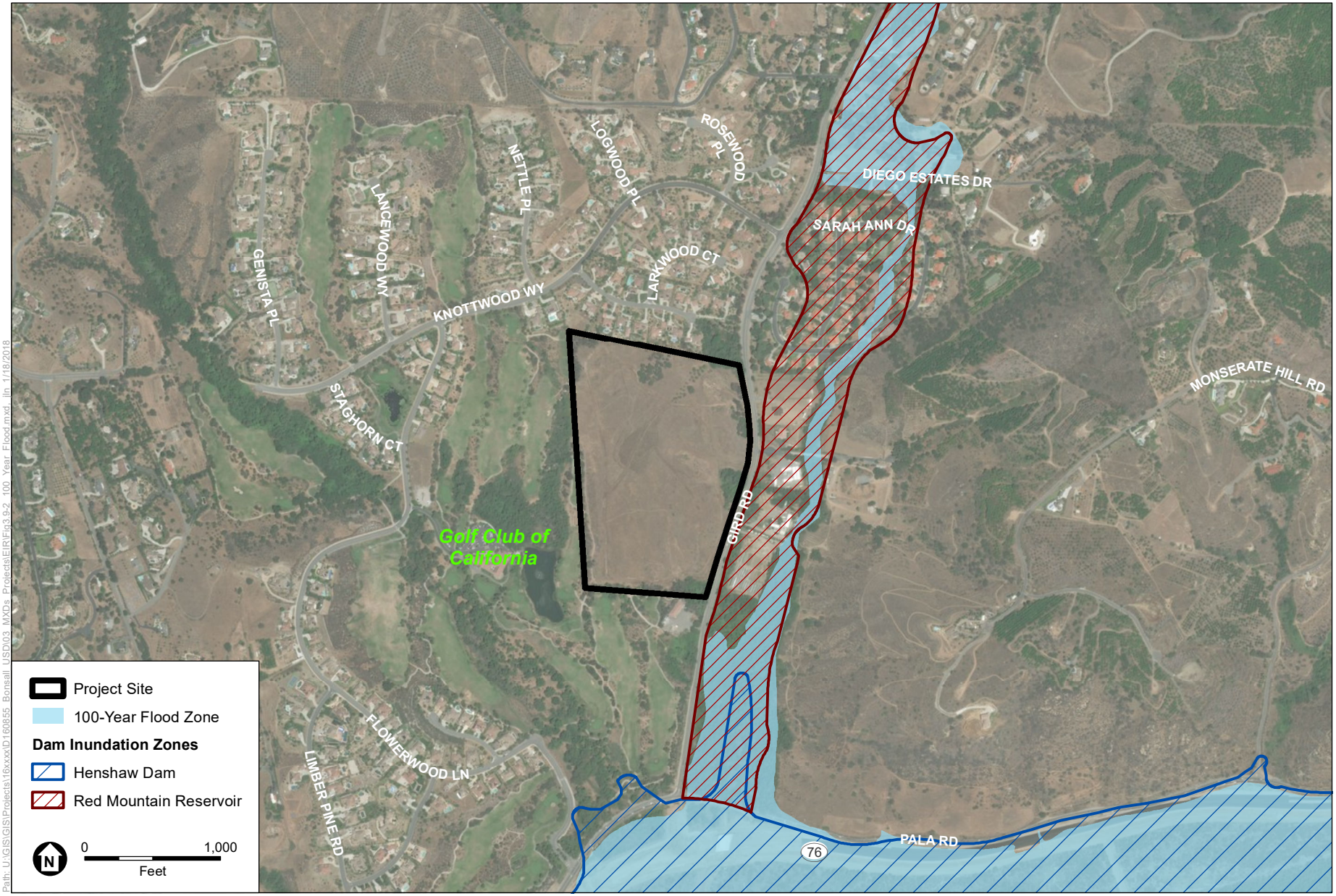
Seiche, Tsunami and Mudflow

A seiche is a standing wave oscillating in a body of water, typically caused by strong winds pushing water from one end of a body of water to the other (NOAA, 2017a). The proposed project is not located near a large body of standing water, and thus is not at risk of experiencing a seiche. Tsunamis are giant waves caused by earthquakes (NOAA, 2017b); the project site is not located within a tsunami inundation area identified by the County (San Diego County, 2009). Mudflows are flows of water that contain large amounts of suspended particles and silt; they occur on steep slopes where vegetation is not sufficient to prevent rapid erosion or during short periods of heavy precipitation on easily erodible source material (EB, 2017). The project site does not contain any steep slopes and as it is in a Mediterranean climate, is not known to experience short periods of heavy precipitation; therefore, mudflow potential at the site is considered low.

3.9.2 Regulatory Setting

Federal

The Clean Water Act (CWA) is administered in California by the USEPA, the SWRCB, and the RWQCBs. The CWA serves as the primary federal law protecting the quality of waters of the United States (U.S.), including lakes, rivers, and coastal wetlands. Waters of the U.S. are defined as "All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide." The Clean Water Act includes the National Pollutant Discharge Elimination System (NPDES) Program (Section 402), which regulates storm water discharges to surface waters. In California, the USEPA authorizes the State Water Resources Control Board (SWRCB) to oversee the NPDES program through the RWQCBs. The RWQCBs, under the guidance of the USEPA, issue NPDES permits to any construction project over one acre that are not covered by an individual NPDES permit.



SOURCE: ESRI

Bonsall High School / BUSD

Figure 3.9-2
Flood Zones

ESA

State

National Pollutant Discharge Elimination System (NPDES) Program

The NPDES permit program is administered in the State of California by the SWRCB and RWQCBs under the authority of the USEPA to control water pollution by regulating point sources that discharge pollutants into Waters of the US. If discharges from industrial, municipal, and other facilities go directly to surface waters, those project applicants must obtain permits. An individual NPDES permit is specifically tailored to a discharge to waters of the US. A general NPDES permit covers multiple facilities within a specific activity category such as construction activities. A general permit applies with same or similar conditions to all dischargers covered under the general permit. The proposed program would be covered under the general permits (Construction General Permit and Waste Discharge Requirements) discussed below.

Construction General Permit

The Construction General Permit *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002, Construction General Permit) regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects (LUP), including installation of water pipelines and other utility lines.

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving offsite into receiving waters. The SWPPP BMPs are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

Waste Discharge Requirements – Conditional Waiver No. 2

Resolution No. R9-2007-0104 was passed by the San Diego Regional Water Quality Control Board (SDRWQCB) to amend the Basin Plan to renew and issue revised conditional waivers to complying with Waste Discharge Requirements (WDRs) (SDRWQBC, 2017a). Conditional Waiver No. 2 covers low-threat discharges to land, which includes short-term construction dewatering operation discharges to land. “Low threat” discharges are not expected to adversely affect the quality of groundwater. The general waiver conditions state that low threat discharges cannot: 1) be discharged to surface waters of the State, 2) cause the migration of contaminants to groundwater, 3) come into contact with contaminated materials, 4) impact the quality or beneficial uses of groundwater. Any products used to condition or treat low threat discharges prior to discharging to land must in accordance with manufacturer’s instructions and guidelines

and must reliably attenuate before infiltrating to underlying groundwater. A Notice of Intent must be submitted to the San Diego Regional Water Quality Control Board to comply with Conditional Waiver No. 2 (SDRWQCB, 2017b).

Local

San Diego County Regional Water Quality Control Board Municipal Separate Storm Sewer Permit

The MS4 Permit requires implementation of low impact development features for all projects meeting the qualifications of a priority development project. One of the qualifications is a development project creating 10,000 square feet or more of impervious surfaces. Since the project would introduce 101,500 square feet to the project site in just one-story building area (not including the field building and parking lots), it would qualify as a priority development project. Each priority development project must:

1. Implement onsite structural BMPs to control pollutants in stormwater (these include LID BMPS designed to retain onsite the pollutants contained in stormwater runoff produced from a 24-hour 85th percentile storm event); and
2. Implement hydromodification management BMPs (post-project runoff conditions must not exceed pre-development runoff conditions by more than 10 percent) (SDRWQCB, 2015).

The MS4 Permit also requires the phased development and implementation of water quality improvement plans (WQIPs) for the region's watersheds (LWA and Amec, 2015). The project is not currently subject to the MS4 permit, but is consistent with MS4 permit requirements.

San Luis Rey Watershed Water Quality Improvement Plan

The goal of the WQIP for the San Luis Rey Watershed is to help protect water quality and beneficial uses by prioritizing and addressing water quality conditions that are influenced by storm drain discharges. The WQIP establishes numeric goals for bacteria in the watershed and identifies sources and implementation strategies to achieve water quality goals. The WQIP also establishes a monitoring and assessment program to evaluate progress of strategies toward achieving goals (LWA and Amec 2015). Priority water quality conditions are included in **Table 3.9-2** below.

TABLE 3.9-2
PRIORITY WATER QUALITY CONDITIONS IN THE SAN LUIS REY WATERSHED

	Dry Weather	Wet Weather
Highest Priority Water Quality Condition	Bacteria	Bacteria
Priority Water Quality Condition	Nitrogen and Phosphorus	Nitrogen and Phosphorus
	Total Dissolved Solids	Total Dissolved Solids
	Eutrophic Conditions	Toxicity
	Index of Biological Integrity	
	Chloride	
	Toxicity	

SOURCE: LWA and Amec 2015

Groundwater Sustainability Plan for the San Luis Rey Valley Groundwater Basin

A memorandum of understanding was published in June of 2017 stating the intention of the County in partnership with various water agencies to act as a sustainable groundwater agency and to create a groundwater sustainability plan for the San Luis Rey Valley Groundwater Basin per the requirements of the SGMA (San Diego County, 2017).

San Diego County Grading Ordinance

In order to be in compliance with the San Diego County Grading Ordinance, a grading permit from San Diego County must be obtained for grading activities (Gird Road). The grading permit application requires the submittal of a grading plan. The grading plan must include erosion control and site design BMPs to be implemented on the site, including erosion control, velocity reduction, sediment control, and post-construction source control. The County plan checker confirms that grading activities are in compliance with the County Grading Ordinance (San Diego County, 2016).

San Diego Watershed Protection, Stormwater Management, and Discharge Control Ordinance

The San Diego Watershed Protection, Stormwater Management and Discharge Control Ordinance was added to the County Code of Regulatory Ordinances to ensure the County implements SWRCB and RWQCB policies that pertain to stormwater quality (San Diego County, 2016). The project has been designed to comply with these requirements, but is not subject to them as it is exempt from County requirement except for the offsite Gird Road improvements.

San Diego County General Plan

Chapter 5 of the General Plan is comprised of the Conservation and Open Space Element, which contains goals and policies pertaining to water resources. Chapter 7 contains the Safety Element, which includes goals and policies pertaining to flood hazards (San Diego County, 2011). These goals and policies are listed below.

Conservation and Open Space Element

Goal COS-4: Water Management. A balanced and regionally integrated water management approach to achieve the long-term viability of the County's water quality and supply.

Policy COS-4.1: Water Conservation. Require development to reduce the waste of potable water through use of efficient technologies and conservation efforts that minimize the County's dependence on imported water and conserve groundwater resources.

Policy COS-4.2: Drought-Efficient Landscaping. Require efficient irrigation systems and in new development encourage the use of native plant species and non-invasive drought tolerant/low water use plants in landscaping.

Policy COS-4.3: Stormwater Filtration. Maximize stormwater filtration and/or infiltration in areas that are not subject to high groundwater by maximizing the natural drainage patterns and the retention of natural vegetation and other pervious surfaces. This

policy shall not apply in areas with high groundwater, where raising the water table could cause septic system failures, moisture damage to building slabs, and/or other problems.

Policy COS-4.4: Groundwater Contamination. Require land uses with a high potential to contaminate groundwater to take appropriate measures to protect water supply sources.

Policy COS-4.5: Recycled Water. Promote the use of recycled water and gray water systems where feasible.

Goal COS-5: Protection and Maintenance of Water Resources. Protection and maintenance of local reservoirs, watersheds, aquifer-recharge areas, and natural drainage systems to maintain high-quality water resources.

Policy COS-5.1: Impact to Floodways and Floodplains. Restrict development in floodways and floodplains in accordance with policies in the Flood Hazards section of the Safety Element.

Policy COS-5.2: Impervious Surfaces. Require development to minimize the use of directly connected impervious surfaces and to retain stormwater run-off caused from the development footprint at or near the site of generation.

Policy COS-5.3: Downslope Protection. Require development to be appropriately sited and to incorporate measures to retain natural flow regimes, thereby protecting downslope areas from erosion, capturing runoff to adequately allow for filtration and/or infiltration, and protecting downstream biological resources.

Policy COS-5.4: Invasive Species. Encourage the removal of invasive species to restore natural drainage systems, habitats, and natural hydrologic regimes of watercourses.

Policy COS-5.5: Impacts of Development to Water Quality. Require development projects to avoid impacts to the water quality in local reservoirs, groundwater resources, and recharge areas, watersheds, and other local water sources.

Safety Element

Goal S-9: Protection of Life and Property. Minimized personal injury and property damage losses resulting from flood events.

Policy S-9.1: Floodplain Maps. Manage development based on federal floodplain maps. County maps shall also be referred to and in case of conflict(s) between the County floodplain maps and the federal floodplain maps, the more stringent of restrictions shall apply.

Policy S-9.2: Development in Floodplains. Limit development in designated floodplains to decrease the potential for property damage and loss of life from flooding and to avoid the need for engineered channels, channel improvements, and other flood control facilities. Require development to conform to federal flood proofing standards and siting criteria to prevent flow obstruction.

Policy S-9.3: Development in Flood Hazard Areas. Require development within mapped flood hazard areas be sited and designed to minimize on and off-site hazards to health, safety, and property due to flooding.

Policy S-9.4: Development in Villages. Allow new uses and development within the floodplain fringe (land within the floodplain outside of the floodway) only when environmental impacts and hazards are mitigated. This policy does not apply to floodplains with unmapped floodways. Require land available outside the floodplain to be fully utilized before locating development within a floodplain. Development within a floodplain may be denied if it will cause significant adverse environmental impacts or is prohibited in the community plan. Channelization of floodplains is allowed within villages only when specifically addressed in community plans.

Policy S-9.5: Development in the Floodplain Fringe. Prohibit development in the floodplain fringe when located on Semi-Rural and Rural Lands to maintain the capacity of the floodplain, unless specifically allowed in a community plan. For parcels located entirely within a floodplain or without sufficient space for a building pad outside the floodplain, development is limited to a single family home on an existing lot or those uses that do not compromise the environmental attributes of the floodplain or require further channelization.

Policy S-9.6: Development in Dam Inundation Areas. Prohibit development in dam inundation areas that may interfere with the County's emergency response and evacuation plans

Goal S-10: Floodway and Floodplain Capacity. Floodways and floodplains that have acceptable capacity to accommodate flood events.

Policy S-10.1: Land Uses within Floodways. Limit new or expanded uses in floodways to agricultural, recreational, and other such low-intensity uses and those that do not result in any increase in flood levels during the occurrence of the base flood discharge, do not include habitable structures, and do not substantially harm, and fully offset, the environmental values of the floodway area. This policy does not apply to minor renovation projects, improvements required to remedy an existing flooding problem, legal sand or gravel mining activities, or public infrastructure.

Policy S-10.2: Use of Natural Channels. Require the use of natural channels for County flood control facilities except where necessary to protect existing structures from a current flooding problem and where natural channel use is deemed infeasible. The alternative must achieve the same level of biological and other environmental protection, such as water quality, hydrology, and public safety.

Policy S-10.3: Flood Control Facilities. Require flood control facilities to be adequately sized, constructed, and maintained to operate effectively.

Policy S-10.4: Stormwater Management. Require development to incorporate low impact design, hydromodification management, and other measures to minimize stormwater impacts on drainage and flood control facilities.

Policy S-10.5: Development Site Improvements. Require development to provide necessary on- and off-site improvements to stormwater runoff and drainage facilities.

Policy S-10.6: Stormwater Hydrology. Ensure development avoids diverting drainages, increasing velocities, and altering flow rates to off-site areas to minimize adverse impacts to the area's existing hydrology.

Fallbrook Community Plan

Section 3 (Conservation and Open Space) of the Fallbrook Community Plan includes goals and policies pertaining to water and flooding. Those that are pertinent to the project are included below (San Diego County, 2016c).

> **Goal COS 1.3: Water Resources.** To preserve viable streams, wetlands, and floodplains and support the natural environment for the citizens of Fallbrook.
>
> > **Policy COS 1.3.2:** Support the enhancement (restoration, invasive species removal, etc.) of natural drainage systems and natural hydrologic regimes of watercourses.

3.9.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to Hydrology and Water Quality if it would:

- Violate any water quality standards or waste discharge requirements (see Impact 3.9-1, below);
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted) (see Impact 3.9-2, below);
- Substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-or off-site (see Impact 3.9-3, below);
- Substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site (see Impact 3.9-3, below);
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff (see Impact 3.9-4, below);
- Otherwise substantially degrade water quality (see Impact 3.9-5, below);
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map (see Impact 3.9-6, below);
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows (see Impact 3.9-6, below);
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam (see Impact 3.9-7, below); or
- Inundation by seiche, tsunami, or mudflow (see Impact 3.9-8, below).

3.9.4 Methodology

The project details were compared with the above-discussed information in the Environmental Setting and Regulatory Setting sections. For each of the impact thresholds described in the Thresholds of Significance Chapter, conclusions were reached as to whether the proposed project would result in a significant impact in relation to that threshold

3.9.5 Impact Analysis

Water Quality Standards and Waste Discharge Requirements

Impact 3.9-1: The project could violate water quality standards or waste discharge requirements.

Project construction would include activities such as grading and excavation that would disturb sediment onsite; chemicals associated with building materials and fuels for construction equipment would be introduced onsite during construction. Stormwater has the potential to mix with sediment and chemicals onsite during construction prior to discharging into receiving waters, thereby degrading water quality. Project construction would disturb greater than an acre of ground surface and would therefore be required to prepare a SWPPP for construction activities. The SWPPP would require erosion control, sediment control, waste management, and good housekeeping BMPs that would prevent stormwater from mixing with sediment and/or chemicals from the construction site. Implementation of a SWPPP would reduce potential water quality impacts to less than significant levels.

Since groundwater was measured at 10.3 feet below the ground surface near the location of the proposed stormwater quality basin adjacent to Gird Road, the proposed project could require minor areas of dewatering during construction; discharges of groundwater to surface waters (if required) could degrade their water quality. The majority of site grading will not require dewatering. However, discharges from temporary dewatering during construction would be considered low-threat discharges to water quality and would be required to comply with SDRWQCB Waste Discharge Requirements Conditional Waiver No. 2, which stipulates that discharges cannot be discharged to surface waters, contain contaminants or impact groundwater quality. SDRWQCB Waste Discharge Requirements Conditional Waiver No. 2 would require dewatered groundwater to be tested for potential contaminants. If contaminants are detected, dewatered groundwater must be treated onsite prior to its eventual recharge onsite back into the groundwater basin. Therefore, water quality of nearby surface waters and groundwater would be protected via compliance with Conditional Waiver No. 2 stipulations. Therefore, significant impacts to water quality would not occur during construction.

Project operation would include the concentration of persons on the project site for extended periods of time. Chemicals associated with vehicular fuels and landscaping would be introduced to the site, along with bacteria associated with solid waste onsite. The site would also operate with less pervious surfaces than existing conditions, meaning any polluted stormwater would have a lower chance of being infiltrated onsite prior to being discharged into the project site's receiving waters and degrading water quality. As shown in Table 3.9-1 above, San Luis Rey

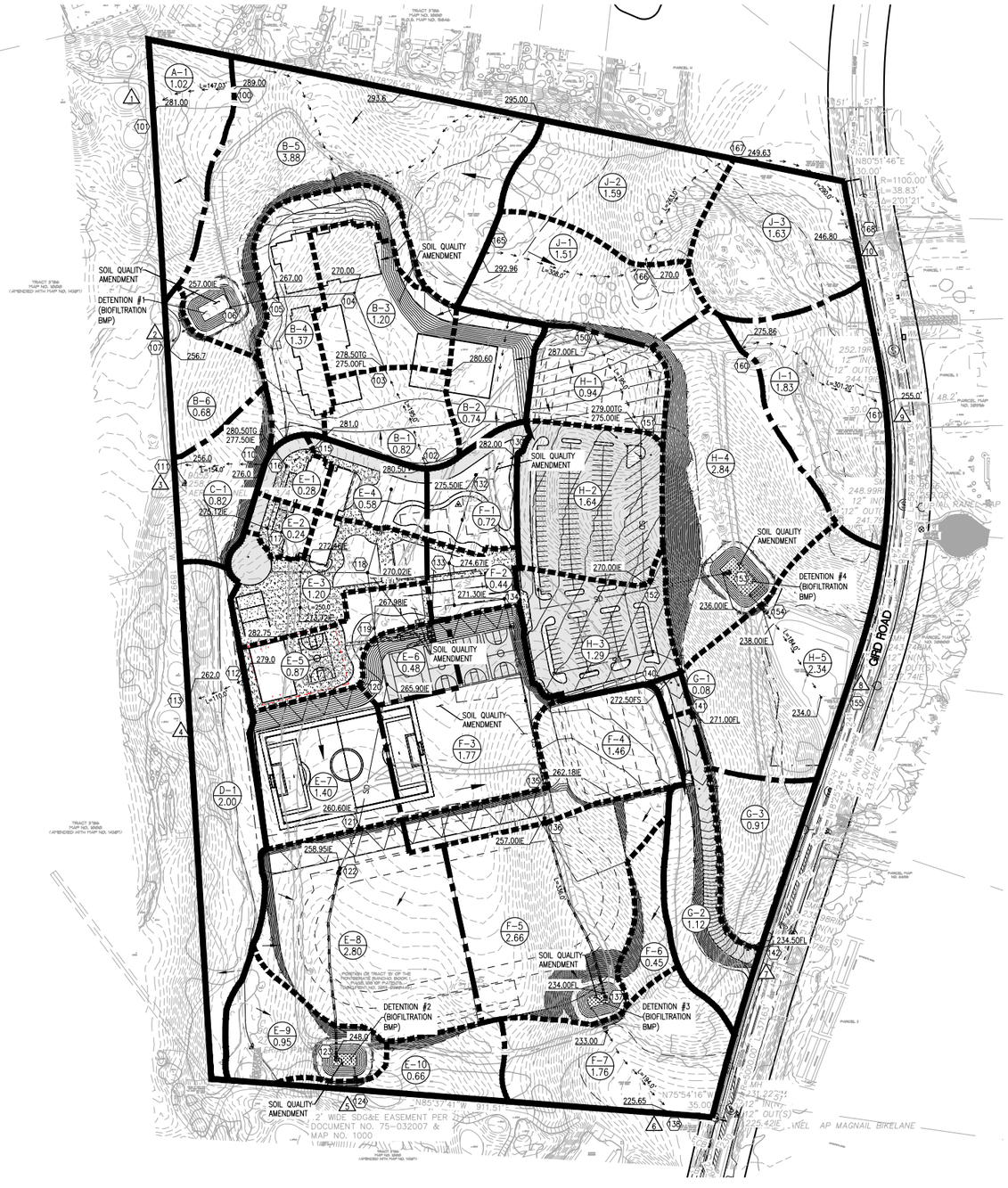
River is already impaired with multiple constituents. Table 3.9-2 indicates that bacteria is the highest priority water quality condition. Therefore, the proposed project could introduce new pollutants or exacerbate existing pollutant concentrations.

Stormwater onsite would be collected by catch basins located throughout the site and conveyed via storm drain lines and vegetated cobble swales to four detention (biofiltration) basins. Rip-rap energy dissipaters would be placed in and outside of the basins to reduce water velocity to protect downstream areas from erosion. The cumulative peak flow rate would be mitigated by the detention (biofiltration) basins. As a result, the total peak flow rate from the project site would be reduced from 111.74 to 66.49 cubic feet per second (cfs), which is 7.60 cfs less than existing condition (**Table 3.9-3**). The proposed detention basins are provided solely to control the peak flow rate of the 100 year, six-hour storm event. The post-development hydrology is shown on **Figure 3.9-3**.

TABLE 3.9-3
PEAK FLOW SUMMARY

Drainage Area (ac)			100 Yr-6-Hr Flow (cfs)			
	Existing Condition	Proposed Condition	Existing Condition	Proposed Condition	Mitigated	Change (%)
Discharge Point 1	1.02	1.02	1.87	1.87	1.87	0.00
Discharge Point 2	6.07	8.69	8.85	18.99	8.22	-7.12
Discharge Point 3	5.29	0.82	9.58	3.07	3.07	-67.95
Discharge Point 4	2.68	2.00	5.43	7.82	7.82	44.01
Sub-Total 1	15.06	12.53	25.73	31.75	20.98	-18.46
Discharge Point 5	7.93	9.46	10.14	20.47	9.22	-9.07
Discharge Point 6	7.52	9.25	10.39	20.34	10.59	1.92
Sub-Total 2	15.45	18.71	20.53	40.81	19.81	-3.51
Discharge Point 7	2.10	2.11	3.13	5.13	5.13	63.90
Discharge Point 8	10.06	9.05	15.20	24.16	10.68	-29.74
Discharge Point 9	1.83	1.83	2.86	2.86	2.86	0.00
Discharge Point 10	4..46	4.73	6.64	7.03	7.03	5.87
Sub-Total	18.45	17.72	27.83	39.18	25.70	-7.65
Total	48.96	48.96	74.09	111.74	66.49	-10.26

SOURCE: BWE, 2018



LEGEND

LEGEND	SYMBOL
OUTER BASIN BOUNDARY	
MAJOR BASIN BOUNDARY	
MINOR BASIN BOUNDARY	
EXISTING STORM DRAIN	SD
NEW STORM DRAIN	SD
EXISTING CONTOUR	XXX
NEW CONTOUR	XXX
FLOW DIRECTION	
FLOW PATH	
FLOW LENGTH	L=XXX.X'
NODE/CONTOUR ELEVATION	306.43TG 301.33IE
HYDROLOGY NODE	200
ANALYSIS/EXIT POINT	1
DRAINAGE BASIN MARKER & AREA (AC)	B-X X.XX

PEAK FLOW RATE SUMMARY

	Drainage Area (ac)		100 Yr-6 hr Flow (cfs)			
	Existing Condition	Proposed Condition	Existing Condition	Proposed Condition	Mitigated	Change (%)
Discharge Point 1	1.02	1.02	1.87	1.87	1.87	**0.00**
Discharge Point 2	6.07	8.69	8.85	18.99	8.22	**-7.12**
Discharge Point 3	5.29	0.82	9.58	3.07	3.07	**-67.95**
Discharge Point 4	2.68	2.00	5.43	7.82	7.82	**44.01**
Sub-Total 1	**15.06**	**12.53**	**25.73**	**31.75**	**20.98**	**-18.46**
Discharge Point 5	7.93	9.46	10.14	20.47	9.22	**-9.07**
Discharge Point 6	7.52	9.25	10.39	20.34	10.59	**1.92**
Sub-Total 2	**15.45**	**18.71**	**20.53**	**40.81**	**19.81**	**-3.51**
Discharge Point 7	2.10	2.11	3.13	5.13	5.13	**63.90**
Discharge Point 8	10.06	9.05	15.20	24.16	10.68	**-29.74**
Discharge Point 9	1.83	1.83	2.86	2.86	2.86	**0.00**
Discharge Point 10	4.46	4.73	6.64	7.03	7.03	**5.87**
Sub-Total 3	**18.45**	**17.72**	**27.83**	**39.18**	**25.70**	**-7.65**
Total	**48.96**	**48.96**	**74.09**	**111.74**	**66.49**	**-10.26**

D160855.00

SOURCE: BWE

Bonsall High School / BUSD

Figure 3.9-3
Post-Development Hydrology and Water Quality

ESA

This page intentionally left blank

As previously described in section 3.9.2, Regulatory Setting, a Post-Construction Storm Water Management Plan, which includes Site Design, Source Control, and Treatment Control/baseline hydromodification is required because the project would create more than 5,000 square feet of impervious area. However, the project site is designed to meet the water balance requirements by using source control and site design BMPs. As a result, storm water treatment/baseline hydromodification measures are not required for this site. Source control and site design BMPs would include would be implemented. The site design BMPs aim to treat and control runoff volume, preserve natural areas, and minimize development impact through improvements. The Site Design BMPs would include the following: stream setbacks and buffer, tree planning and preservation, soil quality improvement maintenance, rooftop and impervious area disconnection. The runoff originating from impervious areas would be discharged into adjacent landscaping prior to discharging into the storm drain system. Source Control measures would reduce the amount of runoff from the site and prevent pollutants from contaminating the project site's runoff. Source Control BMPs are considered the most effective to address non-storm (dry weather) flows. Source Control BMPs that would be implemented as part of the project include: spill control and cleanup for outdoor spills and leaks, maintenance on equipment containing water (e.g., eyewash showers, boiler drain lines, condensate drain lines, rooftop equipment and drainage sumps), trash management, potable water system flushing, fire sprinkler and hydrant testing/flushing, landscape management, sanitary sewer overflows/line blockage, surface cleaning/pressure washing, outdoor painting and sandblasting, stormwater conveyance system management to prevent improper discharge into storm drains, non-storm water discharges, integrated pest management, building repairs and remodeling, parking lot and storage area management, pools, decorative fountains, and other water features. Stormwater would be retained onsite for treatment prior to release offsite; therefore, stormwater prior leaving the project site would not contain excessive chemicals, bacteria or other parameters that would exacerbate the priority water quality conditions specified in the San Luis Rey Watershed WQIP, nor introduce new substantial water quality impacts. Impacts related to water quality would be less than significant.

Significance Determination: Potentially Significant

Mitigation Measures

HYDRO-1: The project shall implement the proposed four (4) stormwater detention and water quality/filtration basins to control stormwater runoff, meet hydromodification requirements, and to achieve storm water quality objectives. See Figure3.9-3. The four stormwater/water quality basins shall be constructed immediately following grading operations.

During excavation, dewatered groundwater (if encountered) shall not come into contact with construction chemicals of any. All dewatered groundwater collected shall be collected and securely stored in closed containers onsite. All dewatered groundwater shall be tested for potential contaminants as specified by San Diego State Regional Water Quality Control Board Waste Discharge Requirements Conditional Waiver No. 2. If contaminants are detected, dewatered groundwater

must be treated onsite prior to its eventual recharge onsite back into the groundwater basin.

During the dry season and following both the completion of excavation activities and completion of the proposed stormwater quality basins, dewatered groundwater shall be discharged to the stormwater quality basins for infiltration back into the groundwater basin. Depending on how much groundwater is dewatered, up to all four stormwater quality basins may be used at a time for infiltration.

Significance after Mitigation: Less than Significant

To ensure significant impacts to water quality do not occur during construction, Mitigation Measure HYDRO-1 would require dewatered groundwater to be tested for potential contaminants as specified by Conditional Waiver No. 2. If dewatering is required and if contaminants are detected, dewatered groundwater must be treated onsite prior to its eventual recharge onsite back into the groundwater basin. Therefore, water quality of nearby surface waters and groundwater would be protected via compliance with Conditional Waiver No. 2 stipulations.

Groundwater Supplies and Recharge

Impact 3.9-2: The project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

Projects have the potential to deplete groundwater supplies directly by requiring dewatering during construction or depending on a water supply from groundwater wells during construction or operation. Groundwater is relatively close to the ground surface on the project site; therefore, the proposed project is anticipated to require dewatering during excavation activities. Therefore, impacts to groundwater supplies or recharge could be significant

Projects have the potential to deplete groundwater supplies indirectly by depending on a water service provider that obtains a portion of its water supply from groundwater sources. As stated previously, the proposed project would be supplied water for construction and operational needs by RMWD. RMWD does not obtain any of its supplies from groundwater sources (RMWD, 2016) (See Section 3.15, *Utilities and Service Systems*, for more details regarding water supply for the proposed project). Therefore, impacts related to the depletion of groundwater supplies would be less than significant.

Substantial interference with groundwater recharge occurs via the conversion of pervious surfaces with impervious surfaces. Implementation of the proposed project would result in an overall reduction of pervious surfaces onsite by adding approximately 18.8 acres of impervious surfaces onsite (101,900 square feet of school building floor area; and 716,340 square feet of parking lot surface). However, the proposed project would maintain a large amount of pervious surfaces and undisturbed open space on the proposed project site, thereby maintaining potential areas for

groundwater recharge. Further, runoff would be directed from catch basins onsite to stormwater quality basins, which would encourage infiltration of surface water back into the groundwater. Therefore, impacts related to interference with groundwater recharge via reduction in impervious surfaces would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Drainage Patterns: Erosion, Siltation, and Flooding

Impact 3.9-3: The project would not substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation or flooding on-or off-site.

The proposed project would require grading and excavation during construction, which would alter the site topography and therefore alter the existing drainage pattern, which could result in erosion, siltation and/or flooding. However, the proposed project would require implementation of a SWPPP, which would include erosion and sediment control BMPs during construction, thereby reducing the potential of erosion and siltation from occurring during construction. Per the County Grading Ordinance, velocity control measures would be implemented during grading activities, thereby helping control potential flooding events that could during construction.

Once operational, the proposed hydrologic regime or drainage pattern for the project site would be slightly altered, but would maintain the existing discharge locations. The proposed existing drainage system and flow pattern would not be significantly altered for the proposed project. However, as described in Impact 3.9-1 above, stormwater onsite would be collected by catch basins located throughout the site and conveyed via a new storm drain line and vegetated cobble swale to biofiltration basins. Rip-rap energy dissipaters would be placed in and outside of the basins to reduce water velocity. Stormwater would be retained onsite or released to the San Luis Rey River south of the project site during larger storm events. Controlling the velocity of stormwater onsite would help prevent erosion from occurring onsite and offsite. Per County MS4 requirements, the site's stormwater features were sized appropriately to retain flows up to the 24-hour 85th percentile storm event for treatment and to not generate runoff in excess of 10 percent of existing site runoff conditions. All drainage basins would maintain the same 100-year, 6-hour peak flow rate as in the existing condition. Therefore, impacts related to erosion and siltation resulting from an altered drainage pattern would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Stormwater Drainage Systems

Impact 3.9-4: The project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Once operational, runoff on the project site would be conveyed from catch basins to biofiltration basins per a new storm drain and a vegetated cobble swale; all storm water generated up to the 24-hour 85th percentile storm event would be retained onsite for infiltration back into the ground. Further, the site would be designed so that regardless of storm event intensity, runoff would not exceed more than 10 percent of the site's existing runoff generation amount. Given the minimal increase in runoff leaving the site, the project would not generate runoff that would exceed the capacity of existing or planned stormwater drainage systems. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Water Quality

Impact 3.9-5: The project could otherwise substantially degrade water quality.

As described under Impact 3.9-1, compliance with the Construction General Permit, State General WDRs, and the County MS4 Permit would reduce potential impacts to surface water quality to less than significant levels. The proposed project could otherwise degrade water quality by impacting the quality of the groundwater that is uncovered during dewatering activities, and impacts could potentially be significant. The project would be required to comply with SDRWQCB Waste Discharge Requirements Conditional Waiver No. 2, which stipulates that discharges cannot be discharged to surface waters, contain contaminants or impact groundwater quality. SDRWQCB Waste Discharge Requirements Conditional Waiver No. 2 would require dewatered groundwater to be tested for potential contaminants. If contaminants are detected, dewatered groundwater must be treated onsite prior to its eventual recharge onsite back into the groundwater basin. Therefore, water quality of nearby surface waters and groundwater would be protected via compliance with Conditional Waiver No. 2 stipulations. Therefore, significant impacts to water quality would not occur during construction.

Significance Determination: Potentially Significant

Mitigation Measures

Implementation of Mitigation Measure HYDRO-1 is required.

Significance after Mitigation: Less than Significant

To reduce potential impacts to water quality, Mitigation Measure HYDRO-1 requires that groundwater uncovered during excavation does not come into contact with any construction chemicals prior to its collection and storage onsite, thereby satisfying the State General WDRs requirement that dewatering activities must not pollute or contaminate groundwater or violate its Basin Plan objectives. Groundwater would then be recharged back into the groundwater basin following the completion of excavation activities via surface infiltration in the completed stormwater quality basins (during the dry season when they are not retaining much runoff). Therefore, the proposed project would not otherwise substantially degrade water quality and impacts would be less than significant.

Housing or Structures in a Flood Zone

Impact 3.9-6: The project would not place housing or structures which would impede or redirect flood flows within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

The proposed project would not be located in a 100-year flood zone as identified by FEMA. Therefore, there would be no impact related to the placement of housing or structures that would impede or redirect flood flows within a 100-year flood hazard area.

Mitigation Measures

No mitigation measures are required.

Significance Determination: No Impact

Dam Inundation

Impact 3.9-7: The project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

The proposed project would not be located in a potential dam inundation area as identified by San Diego County. Therefore, there would be no impact related to exposing people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Mitigation Measures

No mitigation measures are required.

Significance Determination: No Impact

Seiche, Tsunami and Mudflow

Impact 3.9-8: The project would not expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

The proposed project site does not have the potential to experience seiche, tsunami or mudflows. Therefore, there would be no impact related to exposing people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Mitigation Measures

No mitigation measures are required.

Significance Determination: No Impact

3.9.6 Cumulative Impact Analysis

Water Quality Standards and Waste Discharge Requirements

As described above, the proposed project would result in less than significant impacts to hydrology and water quality per compliance with existing regulations and per implementation of Mitigation Measure HYDRO-1, which would require the preservation of existing groundwater eventual recharge onsite. Development projects within the vicinity of the proposed project site would be subject to pertinent requirements designed to protect water quality during construction and operation. If the developments disturb greater than an acre during construction, they would be required to comply with the Construction General Permit, which helps protect water quality through requiring SWPPP development and implementation of its associated BMPs during construction. If the developments require dewatering during construction, required compliance with the State General WDRs would ensure surface water quality and groundwater quality is protected. Compliance with the County grading permit would require installation of erosion control and runoff velocity control BMPs onsite. Should developments satisfy the definition of priority development projects, implementation of LID and hydromodification BMPs would enable treatment and retainment of surface runoff. The proposed project would not result in cumulatively considerable impacts to hydrology and water quality in combination with other projects.

Significance Determination: Potentially Significant

Mitigation Measures

Implementation of Mitigation Measure HYDRO-1 is required.

Significance after Mitigation: Less than Significant

Groundwater Supplies and Recharge

The proposed project would result in less than significant impacts related to the depletion of groundwater supplies and interference with groundwater recharge. Similar to the proposed project, the majority of projects on the cumulative project list would also be dependent on the RMWD for water supplies, which does not use local groundwater as a supply source. Further, any groundwater dewatered during construction of the development projects would likely be recharged via surface spreading in the vicinity of the site (similar to the proposed project). If groundwater is discharged to a sanitary sewer, it is not expected that the overall groundwater dewatered and lost from the basin would be substantial. Multiple development projects on the cumulative list would result in a net loss of pervious surfaces in combination with the proposed

project; however, all development projects satisfying the definition of a priority development project would be unable to generate runoff in excess of 10 percent of existing conditions and would require a substantial amount of retainment onsite. Further, the proposed project and the majority of other projects are located in the San Luis Rey River watershed, meaning any runoff leaving these projects would eventually be discharged into the proximal San Luis Rey River, which is a soft-bottom channel that is capable of groundwater recharge. Therefore, impacts to groundwater supplies and groundwater recharge would not be cumulative considerable.

Drainage Patterns: Erosion or Siltation

Due to compliance with the Construction General Permit and project designed to satisfy County MS4 Permit requirements for LID and hydromodification controls, the proposed project would result in less than significant impacts relating to erosion, siltation and flooding caused by drainage pattern alteration. Similar to the proposed project, many of the projects on the cumulative project list would require grading and excavation, which would alter the topography of their respective sites. Implementation of a SWPPP for all projects disturbing greater than an acre would prevent erosion and siltation from occurring during construction; velocity control measures required by the County Grading Ordinance would help control potential flooding during construction. During operation, all projects satisfying the definition of a priority development project according to the County MS4 Permit would be required to retain a significant amount of runoff onsite, thereby controlling flows and helping prevent erosion, sedimentation and flooding from occurring. Projects that do not meet the priority development project definition would disturb less surfaces, but would still be required to prevent substantial runoff per the County Grading Ordinance. Therefore, impacts related to erosion and siltation resulting from an altered drainage pattern would be not be cumulatively considerable.

Stormwater Drainage Systems

The proposed project would not result in significant impacts related to exceedance of existing or planned stormwater drainage systems, as it would install its own storm drain line and bioswale designed to convey runoff from catch basins to stormwater quality basins that would retain a large amount of runoff onsite. Development projects considered priority development projects by the County MS4 Permit would be required to implement similar site design features to control and retain stormwater runoff, thereby preventing an exceedance of stormwater drainage systems. Development projects that do not meet the priority development project definition would not disturb the ground surface so substantially that a large amount of runoff above existing conditions would be generated, and would likely tie into the existing storm drain system without an exceedance issue. Therefore, impacts related to exceedance of an existing of planned stormwater drainage system would not be cumulative considerable.

Water Quality

As described above in Impact 3.9-1, the proposed project would not result in cumulatively considerable impacts to surface water quality. The proposed project itself would not result in impacts to groundwater quality because the project would ensure compliance with the State General WDRs. Similar to the proposed project, other projects on the cumulative projects list could impact groundwater quality through dewatering or surface flow; however, compliance with

the State General WDRs prohibits the pollution or contamination of groundwater or Basin Plan water quality objective exceedance for groundwater The State General WDRs also cover other potentially groundwater-contaminating activities including well development and boring that may be included as part of the other projects on the cumulative project list. Based on their descriptions, none of the other projects are likely to include the use of hazardous chemicals as part of their operation that could leach into the groundwater and cause water quality issues or water quality objective violations**.** Therefore, impacts related to water quality would not be cumulative considerable.

Housing or Structures in a Flood Zone

The proposed project would not be located in a 100-year flood zone as identified by FEMA and there would be no impact related to the placement of housing or structures that would impede or redirect flood flows within a 100-year flood hazard area. Thus, there would be no cumulative impact.

Dam Inundation

As stated above, the proposed project would not be located in a potential dam inundation area as identified by San Diego County and there would be no impact related to exposing people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Therefore, there would be no cumulative impact related to dam inundation.

Seiche, Tsunami and Mudflow

As stated above, the proposed project site does not have the potential to experience seiche, tsunami or mudflows and there would be no impact. Therefore, there would be no cumulative impact related to inundation by seiche, tsunami or mudflow.

3.9.7 References

Department of Water Resources (DWR), 2004. California's Groundwater Bulletin 118: San Luis Rey Valley Groundwater Basin. Available at: http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/9-07.pdf, accessed August 28, 2017.

DWR, 2016a. 9-007 San Luis Rey Valley, Basin Boundaries. Available at: https://gis.water.ca.gov/app/bbat/reports/BasinBoundaryDescription/BasinBoundaryDescription__9_007.pdf, accessed November 2017.

DWR, 2016b. Groundwater Basins Subject to Critical Conditions of Overdraft. Available at: http://www.water.ca.gov/groundwater/sgm/pdfs/COD-basins_2016_Dec19.pdf, accessed August 28, 2017.

Encyclopedia Brittanica (EB), 2017. Mudflow. Available at: https://www.britannica.com/science/mudflow, accessed August 28, 2017.

Federal Emergency Management Agency (FEMA), 2012. *FIRM No. 06073C0480G*. May 16, 2012.

Larry Walker Associates (LWA) and Amec, 2015. San Luis Rey River Watershed Management Area Water Quality Improvement Plan. Available at: http://www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/docs/wqip/san_luis_rey_river/COMPLETE_SLR_WMA_WQIP.pdf, accessed August 28, 2017.

Mission Resource Conservation District (MRCD), 2017. San Luis Rey Watershed. Available at: http://missionrcd.org/residential/san-luis-rey-watershed/, accessed August 28, 2017.

Pfingsten, Tom, 2007. San Diego Union Tribune, FPUD explores its options at Red Mountain Reservoir. Available at: http://www.sandiegouniontribune.com/sdut-fpud-explores-its-options-at-red-mountain-2007mar25-story.html, accessed August 28, 2017.

Rainbow Municipal Water District (RMWD), 2016. 2015 Urban Water Management Plan. Available at: https://www.rainbowmwd.com/files/3182e1d20/Rainbow+Final+UWMP+07012016.pdf, accessed November 3, 2017.

San Diego County, 2009. Tsunami Inundation Map: San Luis Rey Quadrangle, June 1, 2009. Available at: http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/SanDiego/Documents/Tsunami_Inundation_OceansideSanLuisRey_Quads_SanDiego.pdf, accessed August 28, 2017.

San Diego County, 2011. San Diego County General Plan. Available at: http://www.sandiegocounty.gov/pds/generalplan.html, accessed August 28, 2017.

San Diego County, 2016a. An Ordinance to Amend Section 67.801 et seq. of the San Diego County Code of Regulatory Ordinances Relating to Watershed Protection, meeting date: January 27, 2016. Available at: http://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/WPO.pdf, accessed August 28, 2017.

San Diego County, 2016b. Grading Plan Checklist, Building Division, revised February 26, 2016. Available at: http://www.sandiegocounty.gov/pds/docs/pds009_public.pdf, accessed August 28, 2017.

San Diego County, 2016c. Fallbrook Community Plan, adopted August 2011, last amended May 4, 2016. Available at: http://www.sandiegocounty.gov/pds/docs/CP/Fallbrook_CP.pdf, accessed August 28, 2017.

San Diego County, 2017.Memorandum of Understanding, Development of a Groundwater Sustainability Plan for the San Luis Rey Valley Groundwater Basin, June 27 2017. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/SGMA/SLRMOUfinalsigned.pdf, accessed August 28, 2017.

San Diego Regional Water Quality Control Board (SDRWQCB), 2012. Basin Plan, Chapter 2, 1997. Available at: http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/docs/update082812/Chpt_2_2012.pdf, accessed August 28, 2017.

SDRWQCB, 2017. Conditional Waiver No. 2 – "Low Threat" Discharges to Land, https://www.waterboards.ca.gov/rwqcb9/board_decisions/waivers/docs/Conditional_Waiver_2.pdf, accessed October 27, 2017.

SWRCB, 2010. A resolution Amending the Water Quality Control Plan for the San Diego Basin to Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek). Available at: http://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/docs/bacteria/updates_022410/2010-0210_BactiI_Resolution&BPA_FINAL.pdf, accessed August 28, 2017.

SWRCB, 2011. Integrated Report (Clean Water Act Section 303(D) List / 305(b) Report). Available at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml, accessed August 28, 2017.

U.S. Environmental Protection Agency (USEPA), 2015. MyWATERS Mapper. Available at: https://watersgeo.epa.gov/mwm/, accessed August 17, 2017.

3.10 Land Use and Planning

This section describes the existing land uses of the project area, as well as applicable land use policy and regulatory framework, and potential land use impacts associated with implementation of the proposed project.

3.10.1 Environmental Setting

Regional Setting

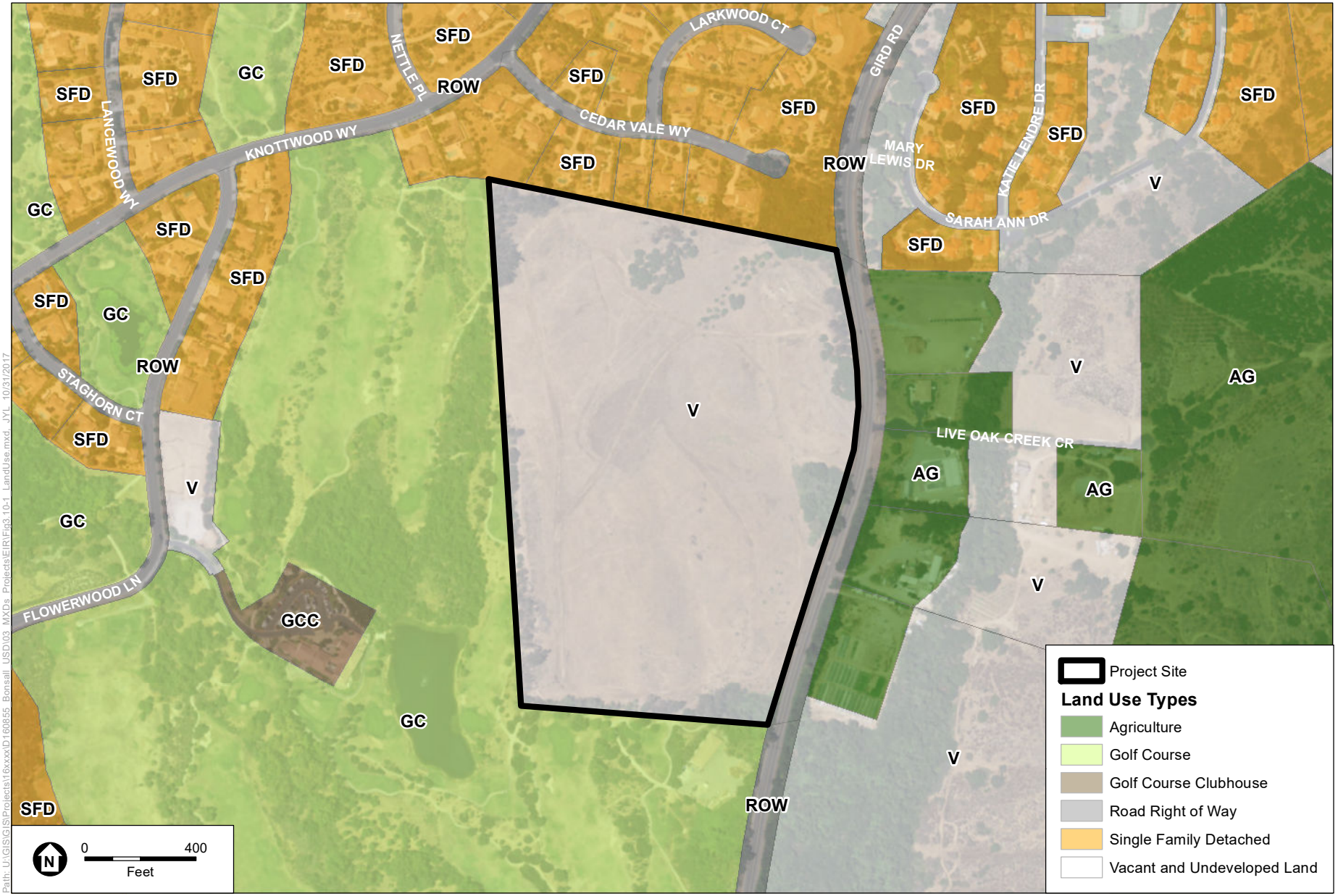
A majority of the County of San Diego's (County) unincorporated land (approximately 90 percent) is either open space or undeveloped. This includes several large federal, state, and regional parklands that encompass much of the eastern portion of the County. Only 35 percent or about 807,000 acres of the unincorporated county is privately owned (County of San Diego, 2011a).

The predominant pattern of development in the unincorporated county is rural in character. Dispersed throughout this area are over 20 distinct communities that vary in land use and density. In general, the communities include a core of commercial uses, services, schools, and public facilities surrounded by residential neighborhoods. They vary from "semi-suburban" communities that transition in scale and density from adjoining incorporated cities to low-density "village" centers surrounded by agricultural lands and open spaces. Each community is defined by various hillside areas, the desert valley, and/or agricultural areas (County of San Diego, 2011a).

The most developed communities are located along the unincorporated territory's westernmost boundaries and include the community plan areas of Spring Valley, Sweetwater, Valle de Oro, Lakeside, San Dieguito, portions of North County Metro, and Fallbrook (County of San Diego, 2011a). The project site is located within the unincorporated community of Fallbrook in the north-central portion of San Diego County (Figure 2-1 in Chapter 2, *Project Description*). The Fallbrook Community is comprised of approximately 36,084 acres of land. The town center of Fallbrook has a mix of high density residential uses, comprised of apartments and townhouses, along with single-family dwellings that are intertwined with light manufacturing and retail business. The Fallbrook Community is more rural the farther away from the downtown area and consists primarily of single-family residential uses and agricultural land (County of San Diego, 2011b).

Existing Land Uses in the Project Area

The project site is located approximately 0.4-mile north of the intersection of State Route 76 (SR-76) and Gird Road (Figure 2-2 in Chapter 2, *Project Description*). The project site is currently vacant, undeveloped land covered by grasses, riparian habitat, eucalyptus woodland, oak trees, barren areas with exposed sandy soils, and natural drainages (**Figure 3.10-1**). The site topography ranges in elevation from 265–288 feet above mean sea level (amsl) (Figure 3.1-1 in Chapter Section 3.1, *Aesthetics*) and generally slopes to the southeast. The project site has a Public/Semi-Public Facilities General Plan Land Use designation and is zoned as Limited Agricultural (A70) (**Figure 3.10-2** and **Figure 3.10-3**) (County of San Diego, 2011b).



Path: U:\GIS\GIS\Projects\16xxxx\D160855_Bonsall_USD\03_MXDs_Projects\EIR\Fig3.10-1_LandUse.mxd_JYL_10/31/2017

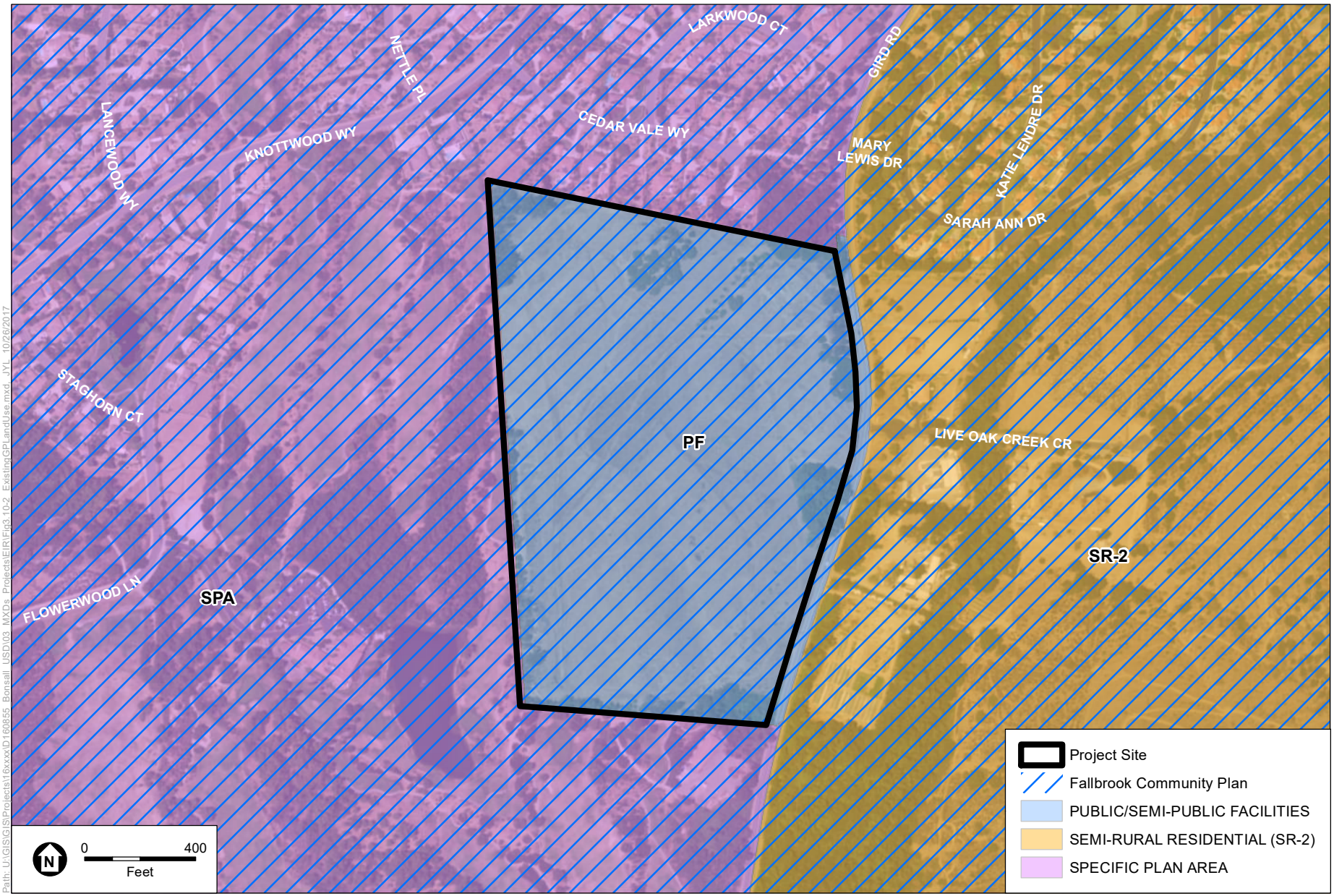
SOURCE: ESRI; SanGIS

Bonsall High School / BUSD

Figure 3.10-1

Existing Onsite and Surrounding Land Use

ESA



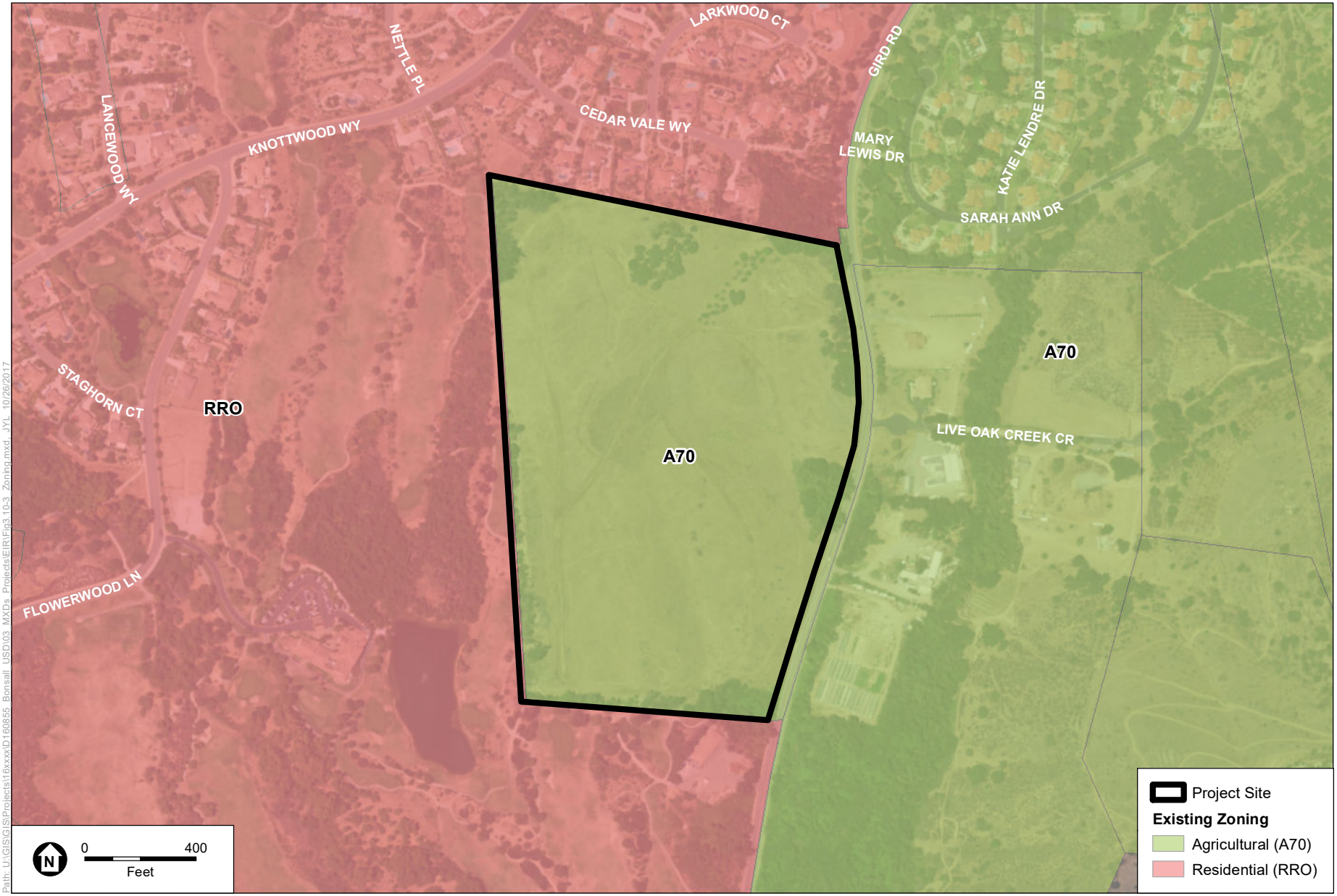
SOURCE: ESRI; SanGIS

Bonsall High School / BUSD

Figure 3.10-2

Existing San Diego County General Plan Designations

ESA



SOURCE: ESRI; SanGIS

Bonsall High School / BUSD

Figure 3.10-3

Existing San Diego County Zoning Designations

ESA

Single-family residential uses are located immediately north of the project site. Further, east of the project side is Gird Road, where there are two residential properties and areas used for agricultural operations. The area just east of Gird Road is designated as Semi-Rural Residential and is zoned for Agriculture. South of the project site is the Golf Club of America golf course, one residential property, and SR-76. West of the project site is the golf course and a club house.

3.10.2 Regulatory Setting

State

Government Code Section 53094 et seq. Subdivision (b)

California Government Code Section 53094 et seq. subdivision (b) specifies that public school districts are exempt from local zoning requirements and restrictions. Specifically, Section 53094 states (California Legislative Information, 2017):

> *(a) Notwithstanding any other provision of this article, this article does not require a school district to comply with the zoning ordinances of a county or city unless the zoning ordinance makes provision for the location of public schools and unless the city or county has adopted a general plan.*
>
> *(b) Notwithstanding subdivision (a), the governing board of a school district, that has complied with the requirements of Section 65352.2 of this code and Section 21151.2 of the Public Resources Code, by a vote of two-thirds of its members, may render a city or county zoning ordinance inapplicable to a proposed use of property by the school district. The governing board of the school district may not take this action when the proposed use of the property by the school district is for nonclassroom facilities, including, but not limited to, warehouses, administrative buildings, and automotive storage and repair buildings.*
>
> *(c) The governing board of the school district shall, within 10 days, notify the city or county concerned of any action taken pursuant to subdivision (b). If the governing board has taken such an action, the city or county may commence an action in the superior court of the county whose zoning ordinance is involved or in which is situated the city whose zoning ordinance is involved, seeking a review of the action of the governing board of the school district to determine whether it was arbitrary and capricious. The city or county shall cause a copy of the complaint to be served on the board. If the court determines that the action was arbitrary and capricious, it shall declare it to be of no force and effect, and the zoning ordinance in question shall be applicable to the use of the property by the school district*

Regional

County of San Diego General Plan

Land Use Element

While the Bonsall Unified School District (BUSD) is not required to comply with San Diego County General Plan and zoning requirements, the following discussion is provided to document

consistency with San Diego County General Plan land use policies and zoning requirements. The County of San Diego Land Use Element provides and framework to accommodate future development in an efficient and sustainable manner that is compatible with the character of unincorporated communities of the County of San Diego and the protection of valuable and sensitive natural resources. The Land Use Element provides maps, goals, and policies that guide planners, the general public, property owners, developers, and decision makers as to how lands are to be conserved and developed in the unincorporated County (County of San Diego, 2011a). Goals and policies relevant to the proposed project are below.

GOAL LU-2: Maintenance of the County's Rural Character. Conservation and enhancement of the unincorporated County's varied communities, rural setting, and character

LU-2.1: Community Plans. Maintain updated Community Plans, as part of the General Plan, to guide development to reflect the character and vision for each individual unincorporated community, consistent with the General Plan.

LU-2.2: Relationship of Community Plans to the General Plan. Community Plans are part of the General Plan. These plans focus on a particular region or community within the overall General Plan area. They are meant to refine the policies of the General Plan as they apply to a smaller geographic region and provide a forum for resolving local conflicts. As legally required by State law, Community Plans must be internally consistent with General Plan goals and policies of which they are a part. They cannot undermine the policies of the General Plan. Community Plans are subject to adoption, review and amendment by the Board of Supervisors in the same manner as the General Plan.

LU-2.4: Relationship of Land Uses to Community Character. Ensure that the land uses and densities within any Regional Category or Land Use Designation depicted on the Land Use Map reflect the unique issues, character, and development objectives for a Community Plan area, in addition to the General Plan Guiding Principles.

LU-2.6: Development near Neighboring Jurisdictions. Require that development in the proximity of neighboring jurisdictions retain the character of the unincorporated community and use buffers or other techniques where development in the neighboring jurisdiction is incompatible

LU-2.8: Mitigation of Development Impacts. Require measures that minimize significant impacts to surrounding areas from uses or operations that cause excessive noise, vibrations, dust, odor, aesthetic impairment and/or are detrimental to human health and safety.

GOAL LU-5: Climate Change and Land Use. A land use plan and associated development techniques and patterns that reduce emissions of local greenhouse gases in accordance with state initiatives, while promoting public health.

LU-5.2: Sustainable Planning and Design. Incorporate into new development sustainable planning and design

LU-5.3: Rural Land Preservation. Ensure the preservation of existing open space and rural areas (e.g., forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, and groundwater recharge areas) when permitting development under the Rural and Semi-Rural Land Use Designations.

LU-5.4: Planning Support. Undertake planning efforts that promote infill and redevelopment of uses that accommodate walking and biking within communities.

GOAL LU-6: Development—Environmental Balance. A built environment in balance with the natural environment, scarce resources, natural hazards, and the unique local character of individual communities.

LU-6.5: Sustainable Stormwater Management. Ensure that development minimizes the use of impervious surfaces and incorporates other Low Impact Development techniques as well as a combination of site design, source control, and stormwater best management practices, where applicable and consistent with the County's LID Handbook.

LU-6.6: Integration of Natural Features into Project Design. Require incorporation of natural features (including mature oaks, indigenous trees, and rock formations) into proposed development and require avoidance of sensitive environmental resources.

LU-6.7: Open Space Network. Require projects with open space to design contiguous open space areas that protect wildlife habitat and corridors; preserve scenic vistas and areas; and connect with existing or planned recreational opportunities.

LU-6.9: Development Conformance with Topography. Require development to conform to the natural topography to limit grading; incorporate and not significantly alter the dominant physical characteristics of a site; and to utilize natural drainage and topography in conveying stormwater to the maximum extent practicable.

GOAL LU-10: Function of Semi-Rural and Rural Lands. Semi-Rural and Rural Lands that buffer communities, protect natural resources, foster agriculture, and accommodate unique rural communities.

LU-10.2: Development—Environmental Resource Relationship. Require development in Semi-Rural and Rural areas to respect and conserve the unique natural features and rural character, and avoid sensitive or intact environmental resources and hazard areas.

Public/Semi–Public Facilities

The project site is designated as Public/Semi–Public Facilities in the San Diego County General Plan (Figure 3.10-2). This land use designation includes major facilities built and maintained for public use. Examples include institutional uses, academic facilities, governmental complexes, and community service facilities, such as County airports, public schools, correctional institutions, solid waste facilities, water facilities, and sewer facilities. This designation may include privately owned facilities built and maintained for public use, such as hospitals, cemeteries, and landfills. A maximum FAR of 0.50 is permitted by this designation (County of San Diego, 2011a).

Education

The provision of educational facilities and services are mandated by the State Department of Education and administered by the San Diego County Board of Education and the San Diego County Office of Education, which is a public agency with land use authority that is separate from the County of San Diego. The County Offices of Education and the San Diego County Board of Education provide support infrastructure for local schools and districts while acknowledging each school board's responsibility to represent and serve their community. The day-to-day development of facilities and delivery of instruction is generally the responsibility of

the County's 42 local school districts. Student populations in the unincorporated areas of the County have generally experienced steady growth rates depending on the particular community or area that the school facility is located. Because the County of San Diego does not have jurisdiction over the land use decisions of public schools, its responsibility for school facilities is limited to review and comment on projects for proposed schools (County of San Diego, 2011a).

County of San Diego Zoning Code

County of San Diego Zoning Code Sections 2000 through 2999 provide provisions to specify the range and combination of land uses necessary to meet requirements for residential and non-residential development within the County of San Diego as set forth in the policies and principles of the San Diego County General Plan. The project site is within an area zoned as Limited Agriculture. Section 2700 of the Zoning Code describes the permitted land uses within this zone (Figure 3.10-3) (County of San Diego, 2017a).

2705 USES SUBJECT TO A MAJOR USE PERMIT

The following use types are allowed by the A70 Use Regulations upon issuance of a Major Use Permit (County of San Diego, 2017b):

a) Residential Use Types
b) Civic Use Types
c) Commercial Use Types
d) Agricultural Use Types
e) Extractive Use Types

The project is considered a Civic Use Type – Major Impact Service

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6134 (N.S.) adopted 7-22-81)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6761 (N.S.) adopted 4-25-84)
(Amended by Ord. No. 6782 (N.S.) adopted 5-16-84)
(Amended by Ord. No. 6855 (N.S.) adopted 10-10-84)
(Amended by Ord. No. 10006 (N.S.) adopted 9-16-09)
(Amended by Ord. No. 10463 (N.S.) adopted 4-14-17)

1350 MAJOR IMPACT SERVICES AND UTILITIES

The Major Impact Services and Utilities use type refers to public or private services and utilities which have substantial impact. Such uses may be conditionally permitted in any zone when the public interest supersedes the usual limitations placed on land use and transcends the usual restraints of zoning for reasons of necessary location and community wide interest. Typical places or uses are schools, sanitary landfills, public and private airports, public park/playground/ recreational areas (other than public passive park/recreational areas), hospitals, psychiatric facilities, cemeteries, nursing homes, detention and correction institutions, trade schools (with outdoor training facilities) or security, law enforcement, military, paramilitary type training facilities, or field medical training uses (County of San Diego, 2017c).

(Amended by Ord. No. 5508 (N.S.) adopted 5-16-79)
(Amended by Ord. No. 6543 (N.S.) adopted 3-2-83)
(Amended by Ord. No. 6855 (N.S.) adopted 10-10-84)
(Amended by Ord. No. 7850 (N.S.) adopted 1-16-91
(Amended by Ord. No. 8340 (N.S.) adopted 12-15-93)
(Amended by Ord. No. 10095 (N.S.) adopted 12-3-10)
(Amended by Ord. No. 10204 (N.S.) adopted 3-28-12)

Local

Fallbrook Community Plan

The Fallbrook Community Plan (Community Plan) was adopted in August 2011 as an integral part of the County of San Diego General Plan. The Community Plan contains goals and policies to provide a framework for addressing the critical issues and concerns that are unique to the community that are not reflected in the broader policies of the General Plan. The Community Plan is consistent with all other parts of the County's General Plan. Used in conjunction with the General Plan, the Community Plan is a key tool for the public, community planning/sponsor groups, County staff, and decision makers to identify the existing conditions and development that positively contribute to its character and should be conserved, as well as the location, scale, and design of desired new land uses, and community facilities. The Community Plan's policies require that development be comparable to, or transition with, existing development to ensure that new development "fits" with the community and enhances the community's vision (County of San Diego, 2011b). BUSD is located in both the Fallbrook and Bonsall Community Plans. The project site is located in the extreme southern portion of the Fallbrook Community Plan and has a land use designation of Public/Semi Public Facilities. Goals and policies that are applicable to the proposed project are below.

Land Use

Community Beautification and Design

Goal LU 2.4: New development within Fallbrook that is designed to be sensitive to the community character, while encouraging the upgrade and beautification of existing development.

Policy LU 2.4.1: Require development to preserve viable mature trees and significant land forms in all public and private development projects, to the maximum extent feasible.

Policy LU 2.4.3: Require on and off-site signs to compliment the aesthetic value and character of the community.

Policy LU 2.4.:4 Encourage a "Village Style "architecture, described as Craftsman, Victorian, Ranch, Colonial, Cottage Mission and Spanish architectural styles and utilization of building materials such as wood (simulated, non-combustible) rock, brick, stone or similar materials which are in harmony with the natural environment. These requirements aim to maintain and promote the intimate personal scale of the Village, its character, and warmth.

Goal LU 5.1: Adequate and equitable financed public services and facilities to meet the demands of a growing population.

Policy LU 5.1.1: Encourage the continued upgrading of utilities and services to provide an optimum level of service through the coordination of, and cooperation between, community services, public utility companies, and County agencies.

Schools

Goal LU 5.2: A continuing high level of public and private educational opportunities and physical school facilities in the Fallbrook area where all individuals, from the preschooler to the adult retiree, have the educational resources to realize their full potential.

Policy LU 5.2.1: Encourage school sites to be selected to ensure a reasonable cost to the public, be adequate in size to serve the needs of the community, and permit safe direct access for the maximum number of students.

Policy LU 5.2.2: Provide safe walkways which serve the purpose of providing convenient access, as well as serving as bus stops, to school sites.

Conservation and Open Space

Goal COS 3.1: Ample preserved open spaces that enhance the health, wellbeing, rural atmosphere and beauty of our community. Provision of natural habitats that help sustain the native plants and animals of our area.

Policy COS 3.1: Coordinate with applicable public agencies and other organizations on the planning, establishment, and maintenance of preserves and corridors for wildlife.

3.10.3 Thresholds of Significance

According to Appendix G of the *CEQA Guidelines*, the proposed project could have a potentially significant impact with respect to Land Use and Planning if it would:

- Physically divide an established community (see Impact 3.10-1, below);
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purposed of avoiding or mitigating an environmental effect (see Impact 3.10-2 below); or
- Conflict with any applicable habitat conservation plan or natural community conservation plan (see Impact 3.10-3, below).

3.10.4 Methodology

The evaluation of land use impacts resulting from implementation of the proposed project is based on the consistency of the proposed project with applicable planning documents, including the County's General Plan and Zoning Ordinance, and the Fallbrook Community Plan. A significant impact would only occur if the project is found to conflict with a plan or policy that is adopted for the purpose of avoiding or mitigating an environmental effect. Evaluation of whether the proposed project could divide an established community is based on the location of the project in relation to surrounding uses and the potential for the project to create barriers within an established community.

3.10.5 Impact Analysis

Divide an Established Community

Impact 3.10-1: The project would not physically divide an established community.

The proposed project would construct a high school on undeveloped land within the southeastern portion of the Fallbrook Community. The physical division of an established community generally refers to the construction of features such as an interstate highway, railroad tracks, or permanent removal of a means of access, such as a local road or bridge that would impact mobility within an existing community or between a community and outlying area. The proposed project's utility facilities are anticipated to be constructed primarily within existing local public rights-of-way, underground. Once linear pipelines are constructed and buried, they would not create a barrier or physically divide an established community. The project does not propose any action that could physically divide an established community. There would be no impact.

Mitigation Measures

No mitigation measures are required.

Significance Determination: No Impact, not applicable

Conflict with Applicable Plans, Policies, or Regulations

Impact 3.10-2: The project would not impact an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project.

The County of San Diego General Plan and Fallbrook Community Plan designate the project site as a Public/Semi-Public Facilities land use, with a zone of Limited Agricultural. Public/Semi-Public Facilities includes major facilities built and maintained for public use such as academic facilities and public schools. The project site currently consists of vacant, undeveloped natural land. The proposed project would include 150,500 square feet of building floor area and approximately 21.4 acres of recreational fields, parking, and landscape/hardscape. The proposed use is consistent with the County of San Diego General Plan land use designation and the above outlines Fallbrook Community Plan goals for schools. The proposed project is consistent with the Fallbrook Community Plan school facility goals.

Further, according to the County of San Diego Zoning Code, Section 2705, the Limited Agriculture Zone allows for Major Impact Services and Utilities use type with the issuance of a Major Use Permit. This use type refers to public facilities such as schools as described in section 3.10.2, *Regulatory Setting*. Therefore, the proposed use is consistent with the Zoning code and would not require any changes in zoning.

Per Government Code Section 53094 et seq. Subdivision (b), BUSD, as the lead agency, is not required to comply with the local general plan and zoning codes; nonetheless, the proposed project would be consistent with the existing County of San Diego general plan/Fallbrook

Community Plan land use and zoning designations and requirements. The proposed project components would not conflict with County of San Diego General Plan goals and policies, nor would it conflict with allowable uses within the Limited Agriculture zone or existing neighboring land uses. No impacts would occur.

Mitigation Measures

No mitigation measures are required.

Significance Determination: No Impact, not applicable

Conflict with Conservation Plans

Impact 3.10-3: The project would not conflict with any applicable habitat conservation plan or natural community conservation plan.

The project site is located within the boundary of the Draft North County Multiple Species Conservation Plan (MSCP), which has not been adopted by the San Diego County Board of Supervisors and/or state and federal resource agencies. In addition, pursuant to the requirements of the San Diego County Biological Mitigation Ordinance (BMO) and the Resource Protection Ordinance (RPO), the project site is exempt from the ordinance requirements as the site is designated Public Facilities. Please refer to Section 3.4 (Biological Resources) for a complete discussion of the MSCO, BMO, and RPO.

Even though the project site is not required to comply with the MSCP, BMO, and RPO, the project has been designed to avoid all on-site and off-site sensitive resources.

Mitigation Measures

No mitigation measures are required.

Significance Determination: No Impact, not applicable

3.10.6 Cumulative Impact Analysis

Divide an Established Community

Projects such as roadways could potentially divide a community; therefore, future cumulative development within the project area has the potential to result in significant cumulative impacts. The proposed project would develop a high school within an undeveloped area, and would not divide an established community. Because no project-related impacts would occur, there is no impact that could combine with other cumulative projects in the project area; therefore, the proposed project would not have a significant cumulative impact associated with physically dividing an established community, and the project's cumulative impact would be less than significant.

Conflict with Applicable Plans, Policies, or Regulations

The proposed project and future development within the project area must be consistent with the County of San Diego General Plan and Fallbrook Community Area Plan. All cumulative projects would also be subject to their respective County General Plan, Zoning Ordinance, and other plans and policies that are intended to ensure new land uses are compatible with their surroundings. Therefore, the proposed project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with consistency with applicable plans and policies, and the project's cumulative impact would be less than significant.

Conflict with Conservation Plans

The project site is located within the boundary of the draft North County Multiple Species Conservations Plan (MSCP), which has not been adopted by the San Diego County Board of Supervisors and/or state and federal resource agencies. In addition, pursuant to the requirements of the San Diego County BMO and RPO, the project site is exempt from the ordinance requirements as the site is designated Public Facilities.

Even though the project site is not required to comply with the MSCP, BMO, and RPO, the project has been designed to avoid all on-site and off-site sensitive resources. As a result, the proposed project would not cumulatively contribute to a conflict with conservation plans.

3.10.7 References

California Legislative Information, 2017. Government Code- GOV, Title 5. Local Agencies, Article 5, Regulation of Local Agencies by Counties and Cities, Section 53904. Available at: http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=GOV&sectionNum=53094., accessed October 25, 2017.

County of San Diego, 2011a. San Diego County General Plan, Chapter 3 Land Use Element. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/gpupdate/docs/GP/LandUseElement.pdf, accessed October 23, 2017.

County of San Diego, 2011b. County of San Diego General Plan Update, Fallbrook Community Plan. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/docs/CP/Fallbrook_CP.pdf, accessed October 23, 2017.

County of San Diego, 2017a. County of San Diego Zoning Code. Available at: http://www.sandiegocounty.gov/content/sdc/pds/zoning.html, accessed October 25, 2017.

County of San Diego, 2017b. County of San Diego Zoning Code. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/zoning/z2000.pdf, accessed October 25, 2017.

County of San Diego, 2017b. County of San Diego Zoning Code. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/zoning/z1000.pdf, accessed October 25, 2017.

3.11 Noise

This section analyzes potential noise and vibration impacts that would result from the proposed project. The analysis describes the existing noise environment in the project area, estimates future noise and vibration levels at surrounding land uses resulting from construction and operation of the project, and identifies the potential for significant impacts. An evaluation of the project's contribution to potential cumulative noise impacts is also provided. Noise worksheets and technical information and data used in this analysis are provided in **Appendix P** of this Draft EIR.

3.11.1 Environmental Setting

Noise and Vibration Basics

Noise Principals and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is defined as the physics of sound. In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. Acoustics addresses primarily the propagation and control of sound.

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude, with audible frequencies of the sound spectrum ranging from 20 to 20,000 Hz. The typical human ear is not equally sensitive to this frequency range. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to these extremely low and extremely high frequencies. This method of frequency filtering or weighting is referred to as A-weighting, expressed in units of A-weighted decibels (dBA), which is typically applied to community noise measurements. A-weighted noise levels are shown in **Figure 3.11-1.**

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time; a noise level is a measure of noise at a given instant in time. However, noise levels rarely persist at that level over

a long period of time. Rather, community noise varies continuously over a period of time with respect to the sound sources contributing to the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with many of the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources, such as changes in traffic volume. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the noise exposure to be measured over periods of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. The following noise descriptors are used to characterize environmental noise levels over time, which are applicable to the proposed project.

L_{eq}: The equivalent sound level over a specified period of time, typically, 1 hour (L_{eq}). The L_{eq} may also be referred to as the average sound level.

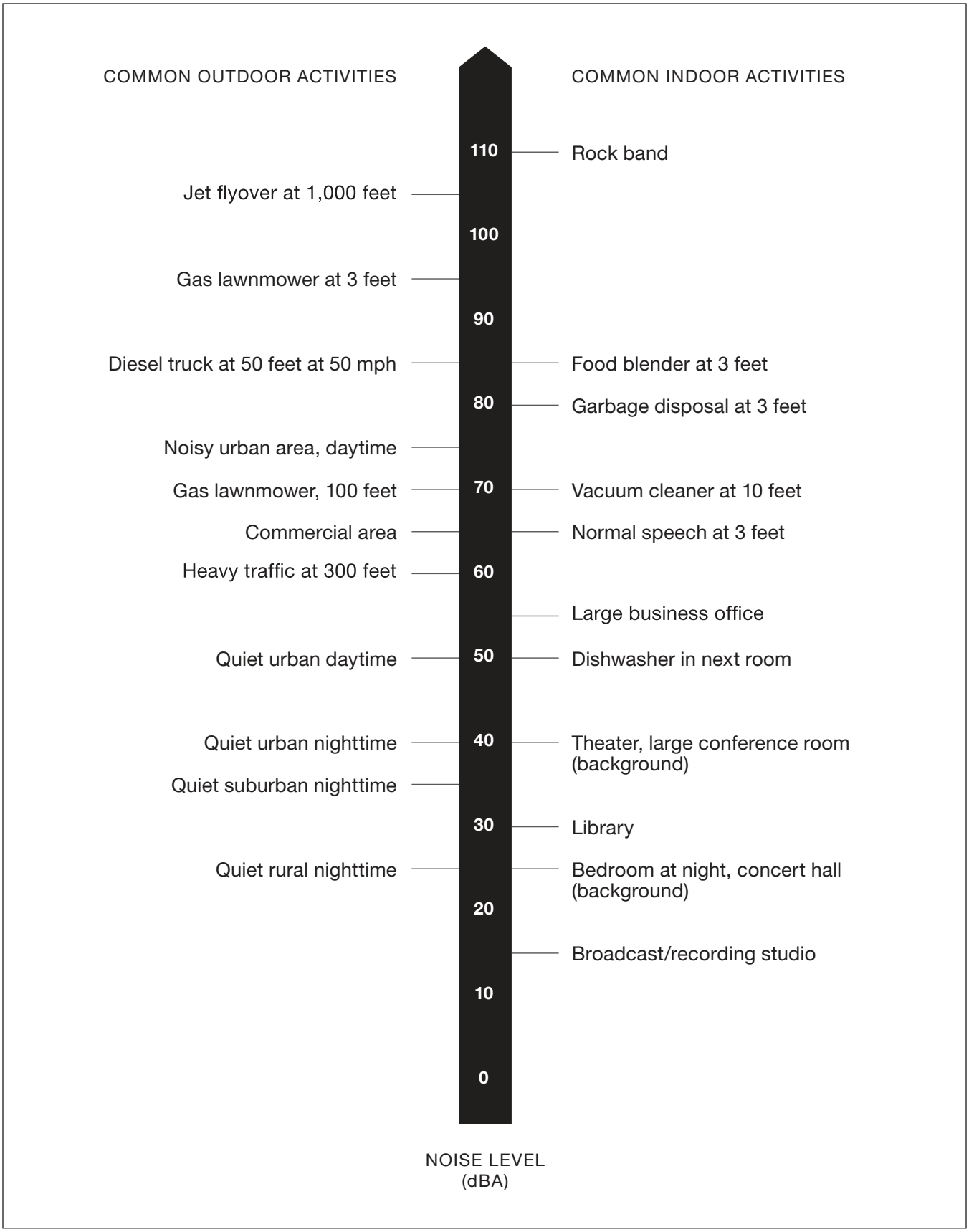
L_{max}: The maximum, instantaneous noise level experienced during a given period of time.

L_{min}: The minimum, instantaneous noise level experienced during a given period of time.

L_x: The noise level exceeded a percentage of a specified time period. For instance, L_{50} and L_{90} represent the noise levels that are exceeded 50 percent and 90 percent of the time, respectively.

L_{dn}: The average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dB to measured noise levels between the hours of 10:00 PM to 7:00 AM to account nighttime noise sensitivity. The L_{dn} is also termed the day-night average noise level (DNL).

CNEL: The Community Noise Equivalent Level (CNEL) is the average A-weighted noise level during a 24-hour day that includes an addition of 5 dB to measured noise levels between the hours of 7:00 AM to 10:00 PM and an addition of 10 dB to noise levels between the hours of 10:00 PM to 7:00 AM to account for noise sensitivity in the evening and nighttime, respectively.



D160855

SOURCE: Caltrans

Bonsall High School / BUSD

Figure 3.11-1
Decibel Scale and Common Noise Sources

ESA

Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance);
- Interference effects (e.g., communication, sleep, and learning interference);
- Physiological effects (e.g., startle response); and
- Physical effects (e.g., hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can include both awakening and arousal to a lesser state of sleep.

With regard to the subjective effects, the responses of individuals to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity. Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur (Caltrans, 2013a):

- Except in carefully controlled laboratory experiments, a change of 1 dBA in ambient noise levels cannot be perceived;
- Outside of the laboratory, a 3 dBA change in ambient noise levels is considered to be a barely perceivable difference;
- A change in ambient noise levels of 5 dBA is considered to be a readily perceivable difference; and
- A change in ambient noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel scale. The human ear perceives sound in a non-linear fashion; therefore, the dBA scale was developed. Because the dBA scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically (see Equation 1). Under the dBA scale, a doubling of

sound energy corresponds to a 3 dBA increase. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. Under the dB scale, three sources of equal loudness together produce a sound level of approximately 5 dBA louder than one source, and ten sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source (Caltrans, 2013a).

Equation 1

$$L = 10\text{Log}_{10}\left(\sum_{i=1}^{n} 10^{(L_i/10)}\right)$$

Noise Attenuation

When noise propagates over a distance, the noise level reduces with distance depending on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (i.e., reduce) at a rate between 6 dBA for acoustically "hard" sites and 7.5 dBA for "soft" sites for each doubling of distance from the reference measurement, as their energy is continuously spread out over a spherical surface (e.g., for hard surfaces, 80 dBA at 50 feet attenuates to 74 at 100 feet, 68 dBA at 200 feet, etc.). Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the reduction in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, which in addition to geometric spreading, provides an excess ground attenuation value of 1.5 dBA (per doubling distance) (Caltrans, 2013a).

Roadways and highways consist of several localized noise sources on a defined path, and hence are treated as "line" sources, which approximate the effect of several point sources. Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading." Line sources (e.g., traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans, 2013a). Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

Additionally, receptors located downwind from a noise source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances (e.g., more than 500 feet). Other factors such as air temperature, humidity, and turbulence can also have significant effects on noise levels (Caltrans, 2013a).

Foundations of Vibration

Vibration can be interpreted as energy transmitted in waves through the ground or man-made structures, which generally dissipate with distance from the vibration source. Because energy is lost during the transfer of energy from one particle to another, vibration becomes less perceptible with increasing distance from the source.

As discussed in the California Department of Transportation's (Caltrans) *Transportation and Construction Vibration Guidance Manual,* operation of construction equipment generates ground vibration. Maintenance operations and traffic traveling on roadways can also be a source of such vibration. If it's amplitudes are high enough, ground vibration has the potential to damage structures, cause cosmetic damage or disrupt the operation of vibration-sensitive equipment such as electron microscopes and advanced technology production and research equipment. Ground vibration and groundborne noise can also be a source of annoyance to individuals who live or work close to vibration-generating activities (Caltrans, 2013b).

In describing vibration in the ground and in structures, the motion of a particle (i.e., a point in or on the ground or structure) is used. The concepts of particle displacement, velocity, and acceleration are used to describe how the ground or structure responds to excitation. Although displacement is generally easier to understand than velocity or acceleration, it is rarely used to describe ground and structureborne vibration because most transducers used to measure vibration directly measure velocity or acceleration, not displacement. Accordingly, vibratory motion is commonly described by identifying the peak particle velocity (PPV) (Caltrans, 2013b).

Existing Conditions

Noise-Sensitive Receptor Locations

Many land uses are considered sensitive to noise. Noise sensitive land uses (NSLUs) are land uses associated with indoor and/or outdoor activities that may be subject to stress and/or significant interference from noise, such as residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities, and libraries. Industrial and commercial land uses are generally not considered sensitive to noise. The existing sound level at any given location depends on the distance to a roadway, proximity to commercial and neighborhood noise sources, and intervening structures and topography.

The project site is located within the unincorporated community of Fallbrook in the northwest portion of San Diego County. The project is located approximately 0.4-miles north of the intersection of State Route 76 (SR-76) and Gird Road. Specifically, the project is located in an unsectioned portion of Township 10 South, Range 3 West on the Bonsall USGS 7.5-minute topographic quadrangle.

Existing noise sensitive uses within 500 feet of the project site include the following as shown in **Figure 3.11-2**, Noise-Sensitive Receptors:

- **North:** Single family residential uses are located immediately to the north.
- **East:** Semi-rural residential uses are located to the east.

All other noise-sensitive uses are located at greater distances from the project site and would experience lower noise levels from potential sources of noise on the project site due to distance loss.

Vibration-Sensitive Receptor Locations

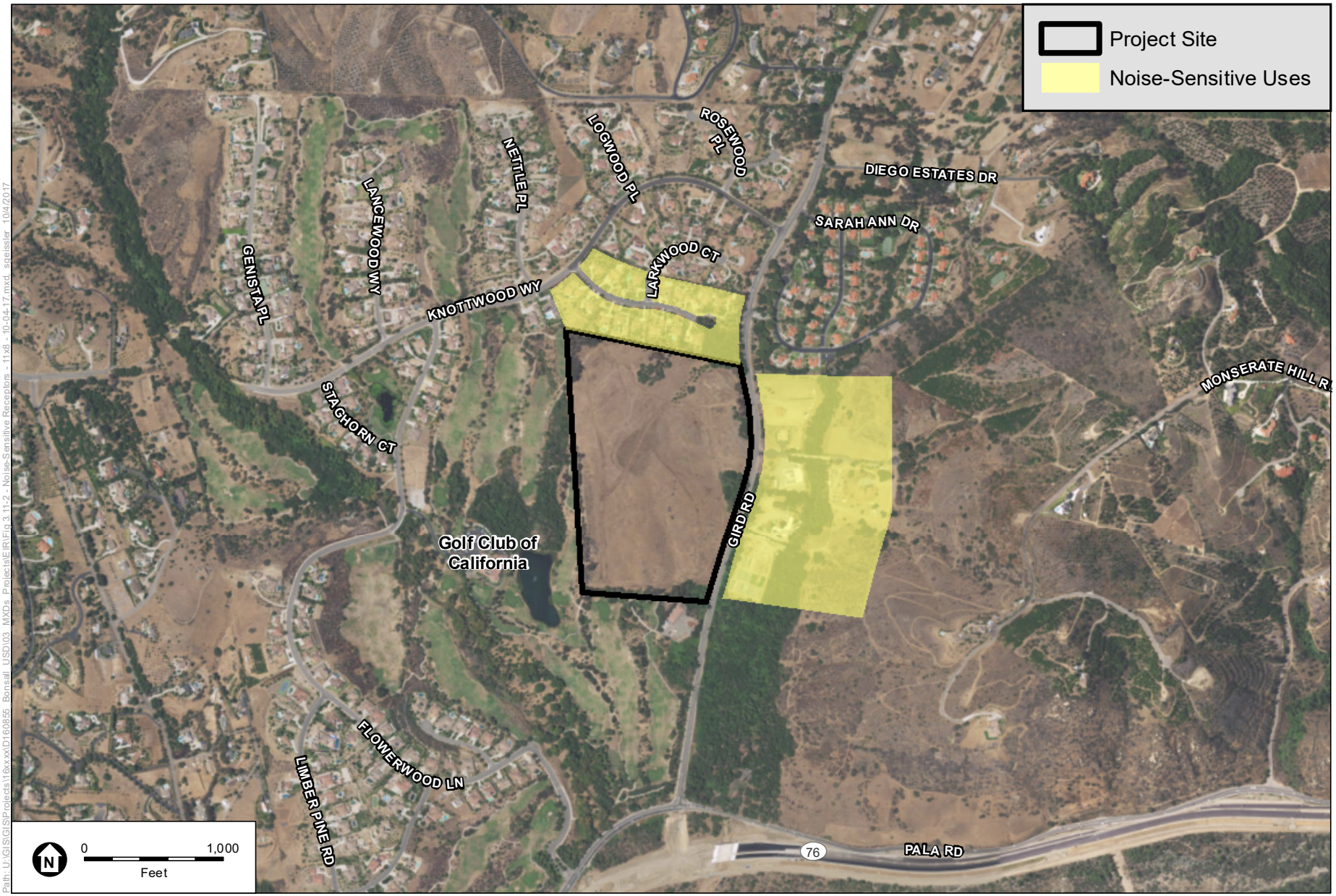
Typically, ground-borne vibration generated by man-made activities (i.e., rail and roadway traffic, operation of mechanical equipment and typical construction equipment) diminishes rapidly with distance from the vibration source. The Federal Transit Administration (FTA) uses a screening distance of 100 feet for highly vibration-sensitive buildings (e.g., hospitals with vibration sensitive equipment, Category 1) and 50 feet for residential uses (Category 2) and schools (Category 3) (FTA, 2006). When vibration-sensitive uses are within these distances from a project site, vibration impact analysis is required. Category 1 vibration-sensitive receptors generally include historic buildings, buildings in poor structural condition, and uses that require precision instruments (e.g., hospital operating rooms or scientific research laboratories) (FTA, 2006). There are no vibration sensitive receptors located within 50 feet of the project construction site.

Ambient Noise

The predominant existing noise surrounding the project site is roadway noise from Gird Road to the east. Secondary noise sources include general residential and agricultural-related activities, such as refuse service and gardening activities.

Existing Roadway Noise Levels

Existing roadway noise levels were calculated for 19 roadway segments located in the vicinity of the project site. The roadway segments selected for analysis are considered to be those that are expected to be the most directly impacted by project-related traffic, which, for the purpose of this analysis, includes the roadways that are located near and immediately adjacent to the project site. These roadways, when compared to roadways located further away from the project site, would experience the greatest percentage increase in traffic generated by the project (as distances are increased from the project site, traffic is spread out over a greater geographic area and its effects are reduced).



SOURCE: NAIP, 2016 (Aerial).

Bonsall High School / BUSD

Figure 3.11-2
Noise-Sensitive Receptors

ESA

Existing roadway noise levels were calculated using the Caltrans Technical Noise Supplement (TeNS) methodology and traffic volumes at the study intersections analyzed in the project's traffic study prepared by Kunzman Associates, August, 2017 (**Appendix Q** of this Draft EIR). The model calculates the average noise level at specific locations based on traffic volumes, average speeds, and site environmental conditions. The average daily noise levels along these roadway segments are presented in **Table 3.11-1**. As shown in Table 3.11-1, existing roadway noise levels range from 54.1 dBA CNEL along Knottwood Way west of Gird Road to 74.0 dBA CNEL along SR-76 between Olive Hill Road and South Mission Road.

TABLE 3.11-1
EXISTING ROADWAY NOISE LEVELS

Roadway Segment	Existing Land Uses Located Along Roadway Segment	dBA CNEL[a]
Gird Road		
Between SR-76 and Knottwood Way	Residential/Commercial	63.1
North of Knottwood Way	Residential	63.4
SR-76		
South of Old River Road	Residential/Commercial	72.5
Between Old River Road and North River Road	Agricultural	73.1
Between North River Road and Olive Hill Road	Commercial	72.9
Between Olive Hill Road and South Mission Road	Commercial	74.0
Between South Mission Road and Via Monserate	Residential/Commercial	70.1
Between Via Monserate and Gird Road	Residential/Commercial	70.3
Between Gird Road and Old Highway 395	Residential/ Agricultural	70.7
North of Old Highway 395	Agricultural	70.5
Knottwood Way		
West of Gird Road	Residential	54.1
Via Monserate		
West of SR-76	Residential/ Agricultural	55.9
South Mission Road		
West of R-76	Commercial/ Agricultural	69.7
Olive Hill Road		
West of SR-76	Commercial	64.8
East of SR-76	School/Religious	66.7
Camino Del Rey		
Between Old River Road and Lilac Road	School/Commercial	66.3
East of Lilac Road	Residential	65.5
Lilac Road		
North of Camino Del Rey	Residential/Commercial	59.8
Old River Road		
South of Camino Del Rey	School/Religious	58.9

[a] Based on noise levels at 25 feet distance from the roadway.

SOURCE: ESA, 2017.

Existing Ground-borne Vibration Levels

Aside from periodic construction work occurring throughout the community, field observations noted that other sources of ground-borne vibration in the project site vicinity are limited to heavy-duty vehicular travel (buses, etc.) on local roadways. A bus traveling at a distance of 50 feet typically generates ground-borne vibration velocity levels of 63 VdB (approximately 0.006 in/sec PPV) (FTA, 2006).

3.11.2 Regulatory Setting

Federal

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the proposed project. However, the following federal noise standards are indirectly applicable to the proposed project

Under the authority of the Noise Control Act of 1972, the United States Environmental Protection Agency (USEPA) established noise emission criteria and testing methods published in Parts 201 through 205 of Title 40 of the Code of Federal Regulations (CFR) that apply to some transportation equipment (e.g., interstate rail carriers, medium trucks, and heavy trucks) and construction equipment. In 1974, USEPA issued guidance levels for the protection of public health and welfare in residential land use areas (USEPA, 1974) of an outdoor L_{dn} of 55 dBA and an indoor L_{dn} of 45 dBA. These guidance levels are not considered as standards or regulations, and were developed without consideration of technical or economic feasibility.

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. §1919 et seq.), the Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.

State

The State of California does not have statewide standards for environmental noise, but the California Department of Health Services (DHS) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise compatibility by different land uses types is categorized into four general levels: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." For instance, a noise environment ranging from 50 dBA CNEL to 65 dBA CNEL is considered to be "normally acceptable" for multi-family residential uses, while a noise environment of 75 dBA CNEL or above for multi-family residential uses is considered to be "clearly unacceptable." In addition, California Government Code Section 65302(f) requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(g) requiring a noise element to be included in the

general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of 45 dBA CNEL in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dBA CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

California Vibration Standards

There are no State vibration standards. Moreover, according to the Caltrans's *Transportation and Construction Vibration Guidance Manual (Caltrans Manual)*, there are no official Caltrans standards for vibration (Caltrans, 2013b). However, this Caltrans Manual provides guidelines that can be used as screening tools for assessing the potential for adverse vibration effects related to structural damage and human perception. The Caltrans Manual is meant to provide practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. The vibration criteria established by Caltrans for assessing structural damage and human perception are shown in **Table 3.11-2** and **Table 3.11-3**, respectively.

TABLE 3.11-2
CALTRANS VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans 2013b

TABLE 3.11-3
CALTRANS VIBRATION ANNOYANCE POTENTIAL CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Slightly perceptible	0.04	0.012
Distinctly perceptible	0.25	0.035
Strongly perceptible	0.9	0.10
Disturbing	2.0	0.7

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans 2013b

Local

County of San Diego General Plan

The project site is located within the Fallbrook Community Plan area in unincorporated San Diego County. The following San Diego County General Plan goals and policies are applicable to the project.

Goal N-1: Land Use Compatibility. A noise environment throughout the unincorporated county that is compatibility with the land uses.

Policy N-1.1: Noise Compatibility Guidelines. Use the Noise Compatibility Guidelines (Table N-1[1]) and the Noise Standards (Table N-2[2]) as a guide in determining the acceptability of exterior and interior noise for proposed land uses.

1 Figure 3.11-3Figure 3.11-3 Noise Compatibility Guidelines
2 Table 3.11-4

Table N-1 Noise Compatibility Guidelines

	Land Use Category	Exterior Noise Level (CNEL)						
			55	60	65	70	75	80
A	Residential—single family residences, mobile homes, senior housing, convalescent homes							
B	Residential—multi-family residences, mixed-use (commercial/residential)							
C	Transient lodging—motels, hotels, resorts							
D*	Schools, churches, hospitals, nursing homes, child care facilities							
E*	Passive recreational parks, nature preserves, contemplative spaces, cemeteries							
F*	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation							
G*	Office\professional, government, medical\dental, commercial, retail, laboratories							
H*	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair							

	ACCEPTABLE—Speci ed land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.
	CONDITIONALLY ACCEPTABLE—New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table N-2, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.
	UNACCEPTABLE—New construction or development shall not be undertaken.

* Denotes facilities used for part ofthe day; therefore, an hourly standard would be used rather than CNEL (refer to Table N -2).

Note: For projects located within an Airport Influence Area of an adopted Airport Land Use Compatibility Plan (ALUCP), additional Noise Compatibility Criteria restrictions may apply as specified in the ALUCP.

D160855

SOURCE: County of San Diego General Plan Noise Element

Bonsall High School / BUSD

Figure 3.11-3
Noise Compatibility Guidelines

ESA

TABLE 3.11-4
NOISE STANDARDS

1. The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL
2. The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
3. The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dBA L_{eq} (one hour average).
4. For single-family detached dwelling units, “exterior noise level” is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area:
   (i) for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet
   (ii) for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area;
   (iii) for lots over 10 acres in area, the exterior area shall include 1 acre.
5. For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. “Private Usable Open Space” is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. “Group Usable Open Space” is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
6. For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7. For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8. The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9. For Categories E and F the exterior noise level standard shall not exceed the limit defined as “Acceptable” in Figure 3.11-1 or an equivalent one-hour noise standard.

SOURCE: County 2009

Policy N-1.2: Noise Management Strategies. Require the following strategies as higher priorities than construction of conventional noise barriers where noise abatement is necessary:

- Avoid placement of noise sensitive uses within noisy areas
- Increase setbacks between noise generators and noise sensitive uses
- Orient buildings such that the noise sensitive portions of a project are shielded from noise sources
- Use sound-attenuating architectural design and building features
- Employ technologies where appropriate that reduce noise generation (i.e., alternative pavement materials on roadways)

Policy N-1.3: Sound Walls. Discourage the use of noise walls. In areas were the use of noise walls cannot be avoided, evaluate and require where feasible, a combination of

walls and earthen berms and require the use of vegetation or other visual screening methods to soften the visual appearance of the wall.

Policy N-1.5: Regional Noise Impacts. Work with local and regional transit agencies and/or other jurisdictions, as appropriate, to provide services or facilities to minimize regional traffic noise and other sources of noise in the county.

Goal N-2: Protection of Noise Sensitive Uses. A noise environment that minimizes exposure of noise sensitive land uses to excessive, unsafe, or otherwise disruptive noise levels.

Policy N-2.1: Development Impacts to Noise Sensitive Land Uses. Require an acoustical study to identify inappropriate noise level where development may directly result in any existing or future noise sensitive land uses being subject to noise levels equal to or greater than 60 CNEL and require mitigation for sensitive uses in compliance with the noise standards listed in Table N-2.

Goal N-3: Groundborne Vibration. An environment that minimizes exposure of sensitive land uses to the harmful effects of excessive groundborne vibration.

Policy N-3.1: Groundborne Vibration. Use the Federal Transit Administration and Federal Railroad Administration guidelines, where appropriate, to limit the extent of exposure that sensitive uses may have to groundborne vibration from trains, construction equipment, and other sources.

Goal N-4: Transportation-Related Noise Generators. A noise environment that reduces noise generated from traffic, railroads, and airports to the extent feasible.

Policy N-4.1: Traffic Noise. Require that projects proposing General Plan amendments that increase the average daily traffic beyond what is anticipated in this General Plan do no increase cumulative traffic noise to offsite noise sensitive land uses beyond acceptable levels.

Policy N-4.2: Traffic Calming. Include traffic calming design, traffic control measures, and low-noise pavement surfaces that minimize motor vehicle traffic noise in development that may impact noise sensitive land uses.

Goal N-6: Temporary and/or Nuisance Noise. Minimal effects of intermittent, short-term, or other nuisance noise sources to noise sensitive land uses.

Policy N-6.3: High-Noise Equipment. Require development to limit the frequency of use of motorized landscaping equipment, parking lot sweepers, and other high-noise equipment if their activity will result in noise that affects residential zones.

Policy N-6.4: Hours of Operation. Require development to limit the hours of operation as appropriate for non-emergency construction and maintenance, trash collection, and parking lot sweeper activity near noise sensitive land uses.

County of San Diego Municipal Code

The County of San Diego Code of Regulatory Ordinances (CSDC) (County, 2017) establishes prohibitions for disturbing, excessive, or offensive noise, and provisions such as sound level limits for the purpose of securing and promoting the public health, comfort, safety, peace, and

quiet for its citizens (Chapter 4, Noise Abatement and Control). Planned compliance with sound level limits and other specific parts of the Noise Abatement and Control chapter allows the presumption that noise is not disturbing, excessive, or offensive. Limits are specified depending on the zoning placed on a property (e.g., varying densities and intensities of residential, industrial and commercial zones). **Table 3.11-5** lists exterior noise level standards and the type of occupancy to which they should be applied. If the measured ambient noise level exceeds the applicable limit as shown in Table 3.11-5, the allowable one-hour average sound level shall be the measured one-hour average ambient noise level, plus 3 dBA. The ambient noise level shall be measured when the alleged noise violation source is not operating. The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones.

TABLE 3.11-5
COUNTY OF SAN DIEGO SOUND LEVEL LIMITS IN DECIBELS

Zone	Daytime Hours (7 AM to 10 PM) dBA (L_{eq})	Nighttime Hours (10 PM to 7 AM) dBA (L_{eq})
Residential, with a General Plan Land Use Designation density of less than 10.9 dwelling units per acre	50	45
Residential, with a General Plan Land Use Designation density of 10.9 or more dwelling units per acre	55	50
Commercial Zones	60	55

SOURCE: CSDC, Section 36.404, 2017.

It is unlawful for any person to cause or allow the creation of any noise that exceeds the applicable limits of the Noise Abatement and Control chapter of the CSDC at any point on or beyond the boundaries of the property on which the sound is produced. Furthermore, the Noise Abatement and Control allows the County to grant variances from the noise limitations for temporary onsite noise sources, subject to terms and conditions intended to achieve compliance.

Section 36.408 of the CSDC prohibits construction between the hours of 7:00 PM and 7:00 AM Monday through Saturday, and at any time on Sunday or a holiday (i.e., construction is allowed Monday through Friday between 7:00 AM to 7:00 PM; and Saturdays and National Holidays between 8:00 AM to 6:00 PM).

Section 36.409 of the CSDC sets a maximum noise level for construction equipment of 75 dBA for an eight-hour period, between 7:00 AM and 7:00 PM, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

Section 36.407 of the CSDC prohibits a refuse compacting, processing, or collection vehicle, or parking lot sweepers between 10:00 PM and 6:00 AM in or adjacent to any residential zone unless a variance has been applied for and granted pursuant to CSDC Chapter 4, Noise Abatement and Control.

Section 36.410 of the CSDC limits impulsive sound events measured at the receiving residential property line to 82 dBA. Impulsive sound events include a single noise event or a series of events which causes peak noise levels in short durations, one second or less).

Section 36.417 of the CSDC sets exemptions for noise from activities such as authorized school bands, school athletic, and school entertainments events.

Fallbrook Community Plan

The Fallbrook Community Plan was adopted in August 2011 as an integral part of the County of San Diego General Plan. The Plan contains goals and policies to provide a framework for addressing the critical issues and concerns that are unique to the community that are not reflected in the broader policies of the General Plan. The Fallbrook Community Plan is consistent with all other parts of the County's General Plan. Used in conjunction with the General Plan, the Community Plan is a key tool for the public, Community Planning/Sponsor Groups, County staff, and decision makers to identify the existing conditions and development that positively contribute to its character and should be conserved, as well as the location, scale, and design of desired new land uses, and community facilities. The refers to the County's General Plan Noise Element for goals and policies related to noise.

3.11.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to noise if it would:

- Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (see Impact 3.11-1, below);
- Expose people to or generate excessive groundborne vibration or groundborne noise levels (see Impact 3.11-2, below);
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project (see Impact 3.11-3, below);
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (see Impact 3.11-4, below);
- Expose people residing or working in the project area to excessive noise levels for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport (see Section 4.1 in Chapter 4.0, Other CEQA Considerations); or
- Expose people residing or working in the project area to excessive noise levels for a project within the vicinity of a private airstrip (see Section 4.1 in Chapter 4.0, Other CEQA Considerations).

Please see Chapter 4.1, *Impacts Found Not to Be Significant*, of this Draft EIR, for a discussion of other issues associated with the evaluation of noise where the characteristics of the project made it clear that effects would not be significant and further evaluation in this section was not warranted.

3.11.4 Methodology

Onsite Construction Noise

Onsite construction noise impacts were evaluated by determining the noise levels generated by the different types of construction activity anticipated, calculating the construction-related noise levels produced by the mix of equipment assumed for all construction activities at nearby sensitive receptor locations, and comparing these construction-related noise levels to existing ambient noise levels (i.e., noise levels without construction noise) at those receptors. More, specifically, the following steps were undertaken to assess construction-period noise impacts.

1. Typical noise levels for each type of construction equipment were obtained from the Federal Highway Administration (FHWA) roadway construction noise model (RCNM).
2. Distances between the construction site location (noise sources) and surrounding sensitive receptors were measured using project architectural drawings and site plans and Google Earth.
3. The construction noise level was then calculated, in terms of hourly L_{eq}, for sensitive receptor locations based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance.
4. Construction noise levels were then compared to the construction noise significance threshold of 75 dBA established by Section 36.409 of the CSDC.

Offsite Roadway Noise (Construction and Operation)

Roadway noise impacts were evaluated using Caltrans TeNS methodology based on the roadway traffic volume data provided in the Traffic Study prepared for the project and included in Appendix Q of this Draft EIR. This method allows for the definition of roadway configurations, barrier information (if any), and receiver locations. Roadway noise attributable to project development was calculated and compared to baseline noise levels that would occur under the "Without Project" condition.

Stationary Point-Source Noise (Operations)

Stationary point-source noise impacts were evaluated by identifying the noise levels generated by outdoor stationary noise sources, such as rooftop mechanical equipment and loading area activity, calculating the hourly L_{eq} noise level from each noise source at sensitive receptor property lines, and comparing such noise levels to existing ambient noise levels. More specifically, the following steps were undertaken to calculate outdoor stationary point-source noise impacts:

1. Distances between stationary noise sources and surrounding sensitive receptor locations were measured using project architectural drawings, Google Earth, and site plans.
2. Stationary-source noise levels were then calculated for each sensitive receptor location based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance.
3. Noise level increases were compared to the stationary source noise significance thresholds identified below.

4. For outdoor mechanical equipment, the maximum allowable noise emissions from any and all outdoor mechanical equipment were specified such that noise levels would not exceed the significance threshold identified below.
5. Parking related noise levels were estimated the methodology recommended by FTA for the general assessment of stationary transit noise source. Using this methodology, the project's peak hourly noise level that would be generated by the onsite parking was estimated using the following FTA equation for a parking lot:

   $L_{eq}(h) = SEL_{ref} + 10\log(NA/1000) - 35.6$, where

   $L_{eq}(h)$ = hourly L_{eq} noise level at 50 feet

   SEL_{ref} = reference noise level for stationary noise source represented in sound exposure level (SEL) at 50 feet

   N_A = number of automobiles per hour

6. Combined noise levels from each operational noise source were estimated such that noise levels would not exceed the significance threshold identified below.

Ground-Borne Vibration (Construction and Operations)

Ground-borne vibration impacts were evaluated by identifying potential vibration sources, measuring the distance between vibration sources and surrounding structure and vibration annoyance receptor locations, and making a significance determination based on the significance thresholds described below.

3.11.5 Impact Analysis

Exceedance of Established Noise Standards

Impact 3.11-1: The project could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Construction Noise

Onsite Construction Noise

Construction of the project would require the use of heavy equipment during grading and excavation activities at the project site. During each stage of development, a different mix of equipment would be used. As such, construction activity noise levels at and near the project site would fluctuate depending on the particular type, number, and duration of use of the various pieces of construction equipment.

Individual pieces of construction equipment expected to be used during project construction could produce maximum noise levels of 74 dBA to 84 dBA L_{max} at a reference distance of 50 feet from the noise source, as shown in **Table 3.11-6**. These maximum noise levels would occur when equipment is operating at full power. The estimated usage factor for the equipment is also shown in Table 3.11-6. The usage factors are based on FHWA's RCNM User's Guide (FHWA, 2006).

TABLE 3.11-6
CONSTRUCTION EQUIPMENT NOISE LEVELS

Construction Equipment	Estimated Usage Factor, %	Noise Level at 50 Feet (dBA, Lmax)
Air Compressors	50%	78
Crane	40%	81
Excavator	40%	81
Forklift	10%	75
Grader	40%	85
Generator Sets	50%	81
Paver	50%	77
Paving Equipment	20%	90
Roller	25%	80
Rubber Tired Dozer	40%	82
Scrapers	40%	84
Tractor/Loader/Backhoe	25%	80
Welders	40%	74

SOURCE: FHWA 2006

During project construction, the nearest and most affected offsite noise sensitive receptors that would be exposed to construction noise levels would be the existing residential uses located in proximity to the project site as well as noise sensitive park uses. Specifically, the nearest offsite noise sensitive receptors include the following:

- North: Single-family residential uses located approximately 200 feet from the project site.
- East: Semi-rural residential uses located approximately 450 feet from the project site.

Over the course of a construction day, the highest noise levels would be generated when multiple pieces of construction equipment are operated concurrently. Estimated project construction noise levels were calculated for a scenario in which all construction equipment was assumed to operate simultaneously and be located at the construction area nearest the affected receptors to present a conservative impact analysis. The estimated noise levels at the offsite sensitive receptors were calculated using the FHWA's RCNM, and were based on a maximum concurrent operation of up to nine pieces of hand tools and equipment (i.e., air compressors, cranes, tractor/loader/backhoe, forklift, generator sets, welders, etc.), which is considered a worst-case evaluation because the project would typically use less overall equipment concurrently on a daily basis, and as such would generate lower noise levels. **Table 3.11-7** shows the estimated construction noise levels that would occur at the nearest offsite sensitive uses during a peak day of construction activity at the project site.

TABLE 3.11-7
ESTIMATE OF CONSTRUCTION NOISE LEVELS (L_{EQ}) AT EXISTING OFFSITE SENSITIVE RECEIVER LOCATIONS

Offsite Sensitive Land Uses	Location	Nearest Distance from Construction Activity to Noise Receptor (ft.) [a]	Estimated Maximum Construction Noise Levels (dBA L_{eq})	Significance Threshold [b]	Exceed Significance Threshold?
Single-family residential uses	North of the project site along Cedar Vale Way	200	67	75	No
Semi-rural residential uses	East of the project site along Gird Road	400	68	75	No

[a] The distance represents the nearest construction area on the project site to the property line of the offsite receptor.
[b] The significance threshold is set by Section 36.409 of the CSDC.

SOURCE: ESA, 2017.

As shown in Table 3.11-7, construction noise levels are estimated to reach a maximum of 67 dBA L_{eq} and 68 dBA L_{eq} at the nearest sensitive receptors to the north and east of the project site, respectively. This would not exceed the 75 dBA significance threshold established by the County. As such, construction noise impacts would be less than significant and no mitigation measures are required.

Offsite Construction Noise

Onsite soils are anticipated to balance and no import or export of soil would be required. Delivery of construction materials, vendor trips, and worker commute trips would occur throughout the construction period. An estimated maximum of approximately 188 vendor and worker vehicle trips would occur per day. Construction related traffic would likely exit the project site with a right turn onto Gird Road, left turn onto SR-76, and merge onto I-15 Highway.

During construction, project-related vehicle trips would generate noise levels of approximately 57.0 dBA L_{eq} at 25 feet from the centerline of Gird Road and SR-76, which would not exceed the significance threshold of 75 dBA established by the County. Therefore, offsite construction traffic noise impacts would be less than significant. No mitigation measures are required.

Operational Noise

Operational Fixed Mechanical Equipment Noise

The operation of mechanical equipment typical for developments like the proposed project, such as air conditioners, fans, generators, and related equipment, may generate audible noise levels. Proposed project mechanical equipment would be located on rooftops or within buildings, and would be shielded from nearby land uses to attenuate noise and avoid conflicts with adjacent uses. In addition, all mechanical equipment would be designed with appropriate noise control devices, such as sound attenuators, acoustics louvers, or sound screen/parapet walls, to comply with noise limitation requirements provided in Section 36.404 of the CSDC, which prohibit the noise from such equipment exceeding the applicable limits provided in Table 3.11-4. The project would comply with the requirement to install mechanical equipment that would generate noise levels below this threshold, consistent with applicable regulatory requirements.

An upper-end conservative reference exterior noise level for air condenser units, the primary source of noise from fixed mechanical equipment, is approximately 82 dBA L_{eq} measured at a distance of five feet based on a review of noise data from several large shopping center projects in Southern California.[3] Noise control devices, such as sound attenuators, acoustics louvers, or sound screen/parapet walls would achieve a minimum 10 dBA reduction in noise level due to noise shielding. The nearest sensitive receptors are approximately 200 feet from to the north of the project site. At this distance, the noise level would attenuate to 40 dBA L_{eq}, assuming a minimum 10 dBA reduction in noise level due to partial noise shielding. This would not exceed the daytime noise limit of 50 dBA specified in Table 3.11-4. Therefore, operation of mechanical equipment would not exceed the County's thresholds of significance and impacts would be less than significant. As such, no mitigation measures are required.

Operational Refuse Collection Area Noise

Refuse collection trucks and trash compactors would generate noise levels of approximately 70 dBA L_{eq} and 66 dBA L_{eq} at a 50-foot distance, respectively.[4] Trash collection and recycling would be located nearby the food service area. Trash collection and recycling would be screened from public view and shielded from offsite development by Concrete Masonry Units (CMU) enclosures. The nearest single-family residential uses north of the project site would be located approximately 600 feet or more from the refuse service areas with proposed school structures blocking line of sight to the area. Based on a noise level source strength of 70 dBA at a reference distance of 50 feet, and accounting for barrier-insertion loss by the CMU enclosures and project buildings (minimum 20 dBA insertion loss) (FHWA, 2011) and distance attenuation (minimum 22 dBA loss per doubling of distance), refuse collection related noise would be approximately 28 dBA at these noise sensitive uses to the north, and therefore, would not exceed the daytime exterior noise limit of 50 dBA L_{eq}. As such, impacts would be less than significant, no mitigation measures are required.

Parking Area Noise

Regional access to the site would be provided by I-15 via SR-76. Project site access would be provided via a new driveway on Gird Road with an onsite turn-around loop for pick-up/drop-off. The northbound left turn pocket on Gird Road would be 150 feet long and would be implemented as part of the project. The access driveway would be stop-sign controlled (i.e. drivers exiting the school onto Gird Road would encounter the stop sign).

The project includes 60 stalls for staff/visitor parking and 139 stalls for student parking. A parking area for up to 12 school buses would be included on the project site contiguous to staff and student parking areas.

Sources of noise associated with parking facilities typically include engines accelerating, doors slamming, car alarms, tire squeals, and people talking. Noise levels within the parking areas

[3] Refer to: City of Moreno Valley, Moreno Valley Walmart Noise Impact Analysis, Table 9-1, Pg. 71, February 10, 2015; and City of Pomona, Pomona Ranch Plaza Walmart Expansion Project, Table 4.4-5, Pg. 4.4-33, August 2014.

[4] Refer to: City of Moreno Valley, Moreno Valley Walmart Noise Impact Analysis, Table 9-1, Pg. 71, February 10, 2015; and City of Pomona, Pomona Ranch Plaza Walmart Expansion Project, Table 4.4-5, Pg. 4.4-33, August 2014.

would fluctuate throughout the day as the amount of vehicle and human activity fluctuates. Noise levels would generally be the highest during the morning peak traffic hours when the largest number of automobiles would enter and exit the parking facility.

For the purpose of providing a conservative, quantitative estimate of the noise levels that would be generated from vehicles entering and exiting the project's parking area, the methodology recommended by FTA for the general assessment of stationary transit noise sources is used.

Based on the project's traffic study prepared by Kunzman Associates (Appendix Q), the project is forecasted to generate 1,950 total daily vehicle trips in 2025, including an anticipated 390 trips and 195 trips during the AM and PM peak hours, respectively. Using the FTA's reference noise level of 92 dBA SEL (FTA, 2006) at 50 feet from the noise source for a parking lot, it was determined that the Project's highest peak hour vehicle trips, which would be 390 trips during the AM peak hour, would generate noise levels of approximately 52 dBA, L_{eq} at 50 feet from the project's parking entrance. The nearest noise sensitive use to the entrance is located approximately 250 feet east of the project site. Based on this distance, the vehicle-related noise levels would be approximately 38 dBA L_{eq}. All other noise sensitive uses would experience lower noise levels. This also conservatively assumes the peak hour traffic would all use one entrance. These noise levels would not exceed the daytime exterior noise limit of 50 dBA L_{eq}. As such, impacts would be less than significant and no mitigation measures are required.

Campus Noise

The proposed project consists of a high school campus. Typical sources of noise from a high school campus consists of bells ringing between periods, students walking and conversing between classes, and students having lunch in outdoor areas. School bells ringing between class periods would occur throughout the day. It is assumed that school bells can reach noise levels of up to 115 dBA L_{eq} at a distance of 6.5 feet (Hear-It, 2017). Residential uses are located approximately 250 feet to the north and 500 feet to the east of the nearest proposed school building that would potentially have a mounted school bell. Assuming that there are no barriers between proposed school buildings and neighboring residential uses blocking the line-of-site of the school bells, noise levels could reach up to 83 dBA L_{eq} and 77 dBA L_{eq} at residential uses to the north and east, respectively. The allowable 82 dBA Leq impulse sound level would be exceed at residential uses to the north. Therefore, impacts would be potentially significant and mitigation would be required.

At buildout, the proposed project would consist of three classroom buildings along the western boundary of the site, an arts building, and physical education area. The anticipated enrollment capacity of 1,500 students would be spread out over these areas during and between class periods. In order to provide a conservative analysis, it has been assumed that all 1,500 students would be contained within the three proposed classroom buildings and to and from these buildings between class periods. The northern classroom building is located approximately 250 feet from the residential uses to the north. The primary noise source from the time between classes would be human conversation, which is estimated to be approximately 55 dBA per person (speaking) measured at a distance of 3 feet (American Journal of Audiology, 1998). Conservatively assuming that 500 students (1,500 students split between three classroom buildings) are talking

simultaneously, the continuous noise level would be up to 78.0 dBA at 3 feet. Based on a noise level source strength of 78.0 dBA at a reference distance of 3 feet, and accounting for distance attenuation (250 feet to residential uses to the north), the student conversational noise would be 40 dBA L_{eq} at residences to the north. These noise levels would not exceed the daytime exterior noise limit of 50 dBA L_{eq}. As such, impacts would be less than significant and no mitigation measures are required

Athletic Field and Special Event Noise

Section 36.417 of the CSDC exempts noise associated with school band, school athletic events, and school entertainment events from adherence to the noise control ordinance. However, it is recognized that an exemption from the CSDC does not negate the potential impact school-related noise can have on neighboring residential uses. Therefore, the impact of potential school-related noise sources has been analyzed herein. As documented in the Project Description (Section 2.0), BUSD is not proposing nighttime athletic field events or special events. Because the project does not include the inclusion of field lighting, there is no potential for any nighttime events to occur at the athletic fields. Athletic fields would be used during daytime hours for athletic purposes such as physical education glass, team sporting events, and occasional special events. The athletic field may also be utilized on weekends during daytime hours for community sponsored sporting and other events. Crowd noise associated with these events is expected to remain onsite. Surrounding uses to the west and south of the project site consist of the Golf Club of California. No residential uses are located adjacent to areas of the project site containing outdoor athletic fields or activity areas. The athletic fields have been sited on the southern portion of the project site with proposed buildings blocking the line-of-sight of the outdoor activity areas, minimizing noise impacts to residential land uses located north of the project site.

Although specific details such as crowd size, potential use and location of sound amplification speakers, and event type are not yet known, this analysis assumes the periodic occurrence of a worst-case event held at the proposed athletic field. Two potential full-capacity events would occur: competitive games and the annual graduation ceremony. It is assumed that a competitive game would produce higher noise levels due to crowd cheering, referee whistles, and use of loud speakers for amplified music and announcements. According to a compilation of reference as well as measured noise levels by the University of Michigan Department of Environmental Health Science, a high school football game could result in noise levels of 87 dBA at the source (University of Michigan, 2015).[5]

The nearest noise-sensitive residential uses are located approximately 1,250 feet to the north, 300 feet to the east, and 1,600 feet to the southwest of the proposed athletic field. Not considering reductions in noise due to shielding from proposed buildings, topography, and vegetation, noise levels would decrease by approximately 6 dBA for each doubling of distance. Noise levels from a competitive game reaching the residential uses to the north, east, and southwest would be up to 25 dBA L_{eq}, 37.5 dBA L_{eq}, and 23 dBA L_{eq}, respectively. These noise levels would not exceed the

[5] A football game is used as a conservative example.

daytime exterior noise limit of 50 dBA L_{eq}. As such, impacts would be less than significant and no mitigation measures are required.

Offsite Operational Traffic Noise Compared to Existing Traffic Baseline Conditions

Existing roadway noise levels were calculated along various arterial segments adjacent to the project site. Roadway noise attributable to project development was calculated using the traffic noise model previously described and was compared to baseline noise levels that would occur under the "No Project" condition.

Project impacts are shown in **Table 3.11-8**. As indicated, the maximum increase in traffic noise levels over existing without project traffic noise levels would be 1.6 dBA CNEL, which would occur along Gird Road between SR-76 and Knottwood Way, adjacent to residential uses. This increase in traffic noise would be below a "barely perceivable" increase of 3.0 dBA. Anticipated increases in traffic noise would be lower at the remaining roadway segments analyzed. The project-related traffic noise increases would be less than the threshold of 3.0 dBA and therefore less than significant. No mitigation measures are required.

TABLE 3.11-8
OFFSITE TRAFFIC NOISE IMPACTS – EXISTING WITH PROJECT CONDITIONS

		Calculated Traffic Noise Levels at 25 Feet from Roadway CNEL (dBA)			
Roadway Segment	**Existing Land Uses Located Along Roadway Segment**	**Existing (A)**	**Existing with Project (B)**	**Project Increment (B-A)**	**Exceed Threshold?**
Gird Road					
Between SR-76 and Knottwood Way	Residential/Commercial	63.1	64.7	1.6	No
North of Knottwood Way	Residential	63.4	63.6	0.2	No
SR-76					
South of Old River Road	Residential/Commercial	72.5	72.5	0.0	No
Between Old River Road and North River Road	Agricultural	73.1	73.1	0.0	No
Between North River Road and Olive Hill Road	Commercial	72.9	73.0	0.1	No
Between Olive Hill Road and South Mission Road	Commercial	74.0	74.2	0.2	No
Between South Mission Road and Via Monserate	Residential/Commercial	70.1	70.4	0.3	No
Between Via Monserate and Gird Road	Residential/Commercial	70.3	70.5	0.2	No
Between Gird Road and Old Highway 395	Residential/ Agricultural	70.7	70.7	0.0	No
North of Old Highway 395	Agricultural	70.5	70.5	0.0	No
Knottwood Way					
West of Gird Road	Residential	54.1	54.8	0.7	No
Via Monserate					
West of SR-76	Residential/ Agricultural	55.9	56.4	0.5	No
South Mission Road					
West of R-76	Commercial/ Agricultural	69.7	69.7	0.0	No

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Calculated Traffic Noise Levels at 25 Feet from Roadway CNEL (dBA)			
		Existing (A)	Existing with Project (B)	Project Increment (B-A)	Exceed Threshold?
Olive Hill Road					
West of SR-76	Commercial	64.8	64.9	0.1	No
East of SR-76	School/Religious	66.7	66.9	0.2	No
Camino Del Rey					
Between Old River Road and Lilac Road	School/Commercial	66.3	66.5	0.2	No
East of Lilac Road	Residential	65.5	65.6	0.1	No
Lilac Road					
North of Camino Del Rey	Residential/Commercial	59.8	60.3	0.5	No
Old River Road					
South of Camino Del Rey	School/Religious	58.9	59.2	0.3	No

SOURCE: ESA, 2017.

Offsite Operational Traffic Noise Compared to Future (2025) Traffic Conditions

Future roadway noise levels were also calculated for the year 2025 under the without project and with project scenarios. Project impacts are shown in **Table 3.11-9**. As indicated, the maximum increase in traffic noise levels over 2025 without project traffic noise levels would be 1.3 dBA CNEL, which would occur along Gird Road between SR-76 and Knottwood Way, adjacent to residential uses. This increase in traffic noise would be below a "barely perceivable" increase of 3.0 dBA. Traffic noise increases would be lower at the remaining roadway segments analyzed. The project-related noise increases would be less than the threshold of 3.0 dBA and would therefore be less than significant. No mitigation measures would be required.

TABLE 3.11-9
OFFSITE TRAFFIC NOISE IMPACTS – FUTURE (2025) WITH PROJECT CONDITIONS

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Calculated Traffic Noise Levels at 25 Feet from Roadway CNEL (dBA)			
		Future without Project (A)	Future with Project (B)	Project Increment (B-A)	Exceed Threshold?
Gird Road					
Between SR-76 and Knottwood Way	Residential/Commercial	64.0	65.3	1.3	No
North of Knottwood Way	Residential	64.2	64.4	0.2	No
SR-76					
South of Old River Road	Residential/Commercial	73.4	73.4	0.0	No
Between Old River Road and North River Road	Agricultural	73.9	73.9	0.0	No
Between North River Road and Olive Hill Road	Commercial	73.7	73.8	0.1	No

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Calculated Traffic Noise Levels at 25 Feet from Roadway CNEL (dBA)			
		Future without Project (A)	Future with Project (B)	Project Increment (B-A)	Exceed Threshold?
Between Olive Hill Road and South Mission Road	Commercial	74.9	74.9	0.0	No
Between South Mission Road and Via Monserate	Residential/Commercial	71.0	71.0	0.0	No
Between Via Monserate and Gird Road	Residential/Commercial	71.1	71.1	0.0	No
Between Gird Road and Old Highway 395	Residential/ Agricultural	71.6	71.6	0.0	No
North of Old Highway 395	Agricultural	71.4	71.4	0.0	No
Knottwood Way					
West of Gird Road	Residential	54.8	55.4	0.6	No
Via Monserate					
West of SR-76	Residential/ Agricultural	57.2	57.5	0.3	No
South Mission Road					
West of R-76	Commercial/ Agricultural	70.6	70.6	0.0	No
Olive Hill Road					
West of SR-76	Commercial	65.8	65.9	0.1	No
East of SR-76	School/Religious	67.6	67.8	0.2	No
Camino Del Rey					
Between Old River Road and Lilac Road	School/Commercial	67.3	67.4	0.1	No
East of Lilac Road	Residential	66.5	66.5	0.0	No
Lilac Road					
North of Camino Del Rey	Residential/Commercial	60.5	60.8	0.3	No
Old River Road					
South of Camino Del Rey	School/Religious	59.8	60.0	0.2	No

SOURCE: ESA, 2017.

Composite Noise Level Impacts from Project Operations

An evaluation of the combined noise levels from the project's various operational noise sources (i.e., composite noise level) was conducted to conservatively ascertain the potential maximum project-related noise level increase that may occur at the nearest noise-sensitive receptors. This evaluation considered the incremental increases in noise from noise sources associated with the project including project related offsite traffic noise and onsite noise including from mechanical equipment, refuse collection area activities, and parking lot activities.

The maximum composite noise impacts would generally be expected to occur close to the project site, as most project-related noise sources would be located on the project site (with the exception of the project's incremental contribution to roadway traffic noise). Because the ringing of school bells is considered an impulse sound occurring over a period of one minute or less, noise levels due to school bells have not been included in the school's composite operational noise level.

As shown in Table 3.11-8 and Table 3.11-9, the project would result in a maximum incremental increase in traffic noise of 1.6 dBA Leq on Gird Road, between SR-76 and Knottwood Way. Residential uses are located west and east sides of Gird Road.

As shown in **Table 3.11-10**, relative to the existing noise environment, the project is estimated to increase the existing roadway noise level by approximately 1.6 dBA at the nearest noise-sensitive receptors, which is less than the 3.0 dBA significance threshold. As such, the composite noise level impact on the nearest sensitive receptors due to project operations would be less than significant, and no mitigation are required.

TABLE 3.11-10
COMPOSITE NOISE LEVELS AT SENSITIVE RECEPTOR LOCATIONS FROM PROJECT OPERATIONS

	Noise Levels, dBA Leq
Operational Noise Sources	**Residential Uses to the East along Gird Road**
(A) Existing Traffic Noise Level at Location[1]	**61.9**
Project Composite Noise Sources	
Fixed Mechanical Equipment	40.0
Refuse Collection Area	28.0
Parking Area	38.0
Campus Noise (Conversation)	40.0
Offsite traffic	
Existing traffic noise level [1]	*61.9*
Existing plus project traffic noise level [1]	*63.5*
Estimated project only traffic noise level [2]	58.4
(B) Project Composite Noise Level	**58.5**
(C) Existing Plus Project Composite Noise Level (A+B) [2]	**63.5**
Project Increment (C-A)	1.6
Threshold	3.0
Exceeds Threshold?	No

[1] See Appendix P for traffic noise worksheets. Traffic noise (Leq) estimated at 25 feet from the roadway centerline.
[2] Noise levels are added/subtracted logarithmically (see Equation 1).

SOURCE: PCR, 2017

Significance Determination: Potentially Significant

Mitigation Measures

The following mitigation measure is proposed to address on-campus operational noise impacts:

NOISE-1: School bells shall be installed in locations where line-of-sight is blocked from neighboring residential uses. School bells shall not be installed on the façade of any proposed building that has direct line-of-site to the property boundary.

Significance after Mitigation: Less than Significant

Implementation of Mitigation Measure NOISE-1 would reduce impulse noise levels from school bells to approximately 73 dBA L_{eq}, a 10 dBA L_{eq} reduction, at the nearest offsite sensitive receptor locations to the north of the project site. The mitigated noise level of 73 dBA L_{eq} would be within the allowable impulse noise level of 82 dBA L_{eq}. Thus, the project's potentially significant operational impact would be reduced to a less than significant level. Therefore, after mitigation, the project would not expose persons to noise levels in exceed of applicable standards.

Exposure to Vibration Levels

Impact 3.11-2: The project would not result in exposure of persons to, or generation of, excessive groundborne vibration.

Construction Vibration

Construction activities at the project site have the potential to generate low levels of groundborne vibration as the operation of heavy equipment (i.e., dozer, excavator, grader, loader, scraper, and paver, etc.) generates vibrations that propagate though the ground and diminish in intensity with distance from the source. No high-impact activities, such as pile driving or blasting, would be used during project construction. The nearest offsite buildings to the project site that could be exposed to vibration levels generated from project construction are located approximately 200 feet to the north. Groundborne vibrations from construction activities very rarely reach the levels that can damage structures, but they may be perceived in buildings in close proximity to a construction site.

As shown in **Table 3.11-11**, the PPV vibration velocities for several types of construction equipment that can generate perceptible vibration levels would result in vibration velocities that could range from 0.003 to 0.089 in/sec PPV at 25 feet from the source of activity.

TABLE 3.11-11
VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

	Approximate PPV (in/sec)				
Equipment	**25 Feet**	**50 Feet**	**60 Feet**	**75 Feet**	**100 Feet**
Large Bulldozer	0.089	0.031	0.024	0.017	0.011
Caisson Drilling	0.089	0.031	0.024	0.017	0.011
Loaded Trucks	0.076	0.027	0.020	0.015	0.010
Jackhammer	0.035	0.012	0.009	0.007	0.004
Small Bulldozer	0.003	0.001	0.0008	0.0006	0.0004

SOURCE: FTA 2006

TABLE 3.11-12
GROUNDBORNE VIBRATION LEVELS AT OFFSITE SENSITIVE USES COMPARED TO CALTRANS' VIBRATION DAMAGE POTENTIAL THRESHOLD

Offsite Sensitive Land Use	Approximate Distance to Project Site (ft.)[a]	Estimated PPV (in/sec)	Caltrans' Vibration Damage Potential Threshold, PPV (in/sec)[b]	Exceed Caltrans' Vibration Threshold? (Yes or No)
Single-family residential uses north of the project site	200	0.004	0.5	No

ft. = feet
in/sec = inches per second.

[a] Approximate distances are measured from the nearest construction area within the project site where vibration levels would be generated to the nearest offsite structure.
[b] Caltrans' Vibration Damage Potential Thresholds were taken from Table 3.11-2.

SOURCE: ESA, 2017.

As shown in **Table 3.11-12**, at a distance of 200 feet, the maximum vibration level would be approximately 0.004 in/sec PPV for a large bulldozer. All other structures are located farther away and vibration velocities would be substantially lower at these more distant structures.

Structural Damage

Under the Caltrans construction vibration damage criteria, the maximum 0.004 in/sec PPV vibration level generated by project construction would not exceed the significance criteria of 0.3 in/s PPV for residential structures located to the north of the project site. As such, vibration impacts with respect to building damage at residential structures north of the project site would be less than significant and no mitigation measures are required.

Human Annoyance

With respect to human annoyance, the nearest noise sensitive uses located in the project site vicinity are single-family residential uses north of the project site. Under Caltrans' vibration annoyance potential criteria (refer to Table 3.11-3**)**, vibration levels exceeding 0.035 in/sec PPV for continuous/frequent sources would be considered distinctly perceptible. This criterion provides for a conservative analysis of vibration impacts because construction activities do not result in continuous/frequent vibration events, but rather intermittent vibration events which humans would be less sensitive to. At a distance of 200 feet, as shown in Table 3.11-12, the single-family residential uses north of the project site would be exposed to vibration levels of 0.004 in/sec PPV, which is well below the Caltrans 0.035 in/sec PPV "distinctly perceptible" threshold. Thus, vibration impacts related to human annoyance would be less than significant and no mitigation measures are required.

Operational Vibration

The project's day-to-day operations would include typical commercial-grade stationary mechanical and electrical equipment, such as air handling units, condenser units, and exhaust fans, which would produce vibration. In addition, the primary sources of transient vibration would include passenger vehicle circulation within the proposed parking area. Ground-borne vibration generated by each of the above-mentioned equipment and rubber-tired vehicles would

generate approximately up to 0.0015 in/sec PPV at 200 feet from the project site (FTA, 2006). The potential vibration levels from all project operational sources at the closest existing building (approximately 200 feet to the north) and human annoyance receptor locations would be less than the applicable significance thresholds of 0.3 in/sec PPV and 0.035 in/sec PPV for structural damage and human annoyance, respectively. As such, vibration impacts associated with operation of the project would be less than significant and no mitigation measures are required.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Permanent Increase in Ambient Noise Levels

Impact 3.11-3: The project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

The existing noise environment in the project area is dominated by traffic noise from nearby roadways, as well as nearby residential and agricultural activities. Long-term operation of the proposed project would not have a significant effect on the community noise environment in proximity to the project site. Noise sources that would have potential noise impacts include: offsite vehicle traffic, mechanical (i.e., air-conditioning) equipment, refuse collection areas, parking areas, and student conversations. Motor vehicle travel on local roadways attributable to the proposed project, as discussed above, would have a less-than-significant impact on community noise levels. Noise levels associated with onsite operations (e.g., parking and mechanical equipment) are also considered less than significant as discussed in Threshold 3.11-1. As such, noise impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Temporary Increase in Ambient Noise Levels

Impact 3.11-4: The project could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Construction

The County does not have a standard for acceptable increases in ambient noise levels. However, Section 36.404 of the CSDC states that when measured ambient noise is greater than allowable noise levels as designated by Section 36.404 of the CSDC, the measured ambient noise level plus 3 dBA shall be the allowable level. Therefore, an increase threshold of 3 dBA, which is considered a "barely perceivable" increase by Caltrans (Caltrans, 2013a), has been used in this analysis. Construction activities associated with the proposed project would normally occur

during the allowable construction hours under CSDC. As shown in Table 3.11-1, existing roadway noise levels at 25 feet from the centerline of Gird Road, between SR-76 and Knottwood Way, would be approximately 62.8 dBA L_{eq} (see Appendix P). As indicated in Table 3.11-7, residential uses along Gird Road would be exposed to construction noise levels of up to 68 dBA L_{eq}, which would increase the existing noise environment to 69.1 dBA L_{eq}, resulting in an increase of 6.3 dBA. This increase in ambient noise would exceed the threshold of 3 dBA L_{eq}. As such, construction of the proposed project would cause a substantial temporary and periodic increase in ambient noise levels in the project vicinity above levels existing without the project. A potentially significant impact would occur.

As discussed previously under Threshold 3.11-1, project-related construction truck trips would generate noise levels of approximately 57 dBA L_{eq} at 25 feet from the centerline of Gird Road and SR-76, which would not exceed the existing roadway noise level of 62.8 dBA L_{eq}. As such, construction noise impacts associated with construction vehicles would be less than significant, no mitigations are required.

Operation

Temporary increase in ambient noise would occur during occasional competitive sports events and the ringing of class period bells. As discussed under Threshold 3.11-1, noise levels of up to 25 dBA L_{eq} and 37.5 dBA L_{eq} would reach residential uses to the north and east, respectively. These noise levels are below the existing traffic noise level of 62.8 dBA L_{eq} along Gird Road. Therefore, occasional sporting events would not result in substantial increases in periodic ambient noise.

Periodic noise associated with class period bells would reach up to 83 dBA Leq and 77 dBA Leq at residential uses to the north and east. Period bells would exceed the existing traffic noise level along Gird Road by 20.2 dBA Leq and 14.2 dBA Leq, but would be of short duration. Therefore, operation of the proposed project would cause a substantial short term periodic increase in ambient noise levels in the project vicinity above levels existing without the project. A potentially significant impact would occur.

Significance Determination: Potentially Significant

Mitigation Measures

The following mitigation measure is proposed to address construction noise impacts:

NOISE-2: During project construction, all construction equipment, fixed or mobile, shall be operated with closed engine doors, if so equipped, and shall include properly operating and maintained residential-grade mufflers consistent with manufacturers' standards.

Significance after Mitigation: Less than Significant

Implementation of Mitigation Measure NOISE-2 would reduce construction noise levels to approximately 61 dBA L_{eq}, a 7 dBA L_{eq} reduction, at the nearest offsite sensitive receptor locations to the north of the project site. The mitigated noise level of 61 dBA L_{eq} would be less

than the existing noise level of 62.8 dBA L_{eq}. Thus, the project's potentially significant construction noise impact would be reduced to a less than significant level. Therefore, after mitigation, the project would not create any significant noise or vibration impacts.

Implementation of Mitigation Measure NOISE-1, detail under Threshold 3.11-1, would reduce impulse noise levels from school bells to approximately 73 dBA L_{eq} and 67 dBA L_{eq}, a 10 dBA L_{eq} reduction, at the nearest offsite sensitive receptor locations to the north and east of the project site, respectively. The mitigated noise levels of 73 dBA L_{eq} and 67 dBA L_{eq} would result in periodic increases of 10.2 dBA L_{eq} and 4.2 dBA L_{eq} at residential uses to the north and east, respectively. These periodic increases in ambient noise due to the ringing of class period bells would exceed an acceptable increase of 3 dBA. The operation of school bells to notify students of class periods that are beginning or ending are necessary for the operation of a high school. Therefore, eliminating the operation of school bells would not be feasible. Thus, operation of school bells on the proposed campus would result in significant and unavoidable impacts related to periodic increases in ambient noise after implementation of feasible mitigation.

3.11.6 Cumulative Impact Analysis

Exceedance of Established Noise Standards

Construction

None of the related projects are located within the immediate vicinity of the project site. Therefore, onsite construction of the related projects does not have the potential to cumulatively contribute to noise levels from construction activities associated with the project site. Construction traffic from all related projects would contribute to noise levels on major thoroughfares throughout the area. One related project, located at the existing Fallbrook Country Club approximately 1.2 miles north of the project site on Gird Road could potentially contribute to offsite haul truck traffic on Gird Road, like the proposed project. However, the timing and schedule of construction activities for this project are not currently known and are not under the control of BUSD. Related project would be required to analyze onsite and offsite construction noise pursuant to the County's CEQA guidelines and apply mitigation if necessary. Offsite construction traffic associated with the proposed project would be less than significant. Therefore, offsite haul truck cumulative noise impacts would not be cumulatively considerable and would be less than significant.

Noise associated with other cumulative construction projects would be required to comply with the County's construction noise standards, similar to the proposed project, and would be required under CEQA, if necessary, to reduce construction noise levels to the degree reasonably and technically feasible through proposed mitigation measures for each individual project, including time restrictions for construction activities. Construction noise tends to occur intermittently, is temporary, and would cease at the end of each projects' construction phase. Because the proposed project would be required to comply with the County's construction noise standards, and as other cumulative projects would also be required to comply with the same standards, as well as their obligation under CEQA to incorporate mitigation measures if needed, the proposed project's contribution to cumulative impacts would not be considerable and cumulative impacts would be less than significant.

Operations

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to operation of the project and Related Projects, as traffic is the greatest source of operational noise in the project area. Cumulative traffic-generated noise impacts were assessed based on a comparison of the future cumulative base traffic volumes with the project to the existing base traffic volumes without the project. Noise levels associated with existing base traffic volumes without the project and cumulative traffic volumes with the project are provided in **Table 3.11-13**. Table 3.11-13 shows the project's contribution to cumulative traffic noise levels. The maximum cumulative noise increase from the project plus cumulative project traffic would be 2.2 dBA CNEL, which would occur along Gird Road between SR-76 and Knottwood Way. This increase in sound level would not exceed the significance thresholds of 3 dBA or 5 dBA increases in ambient noise. As a result, cumulative traffic-related noise impacts would be less than cumulatively considerable.

As is true for the project, the SDCC-required provisions that limit stationary source noise from items such as roof-top mechanical equipment would ensure that noise levels would be less than significant at the property line for each related project. None of the related projects are located within the immediate project vicinity. Additionally, onsite noise generated by each related project would be sufficiently low that it would not result in an additive increase to project-related noise levels. Further, noise from other stationary sources, including parking structures, open space activity and loading docks would be limited to areas in the immediate vicinity of each related project. Although each related project could potentially impact an adjacent sensitive use, that potential impact would be localized to that specific area and would not contribute to cumulative noise conditions at or adjacent to the proposed project site. As the project's composite stationary source impacts would be less than significant, the project's cumulative stationary-source noise impacts would not be considerable.

TABLE 3.11-13
OFFSITE TRAFFIC NOISE IMPACTS – FUTURE 2025 CUMULATIVE INCREMENT

		Calculated Traffic Noise Levels at 25 Feet from Roadway CNEL (dBA)			
Roadway Segment	**Existing Land Uses Located Along Roadway Segment**	**Existing (A)**	**Future with Project (B)**	**Cumulative Increment (B-A)**	**Exceed Threshold?**
Gird Road					
Between SR-76 and Knottwood Way	Residential/Commercial	63.1	65.3	2.2	No
North of Knottwood Way	Residential	63.4	64.4	1.0	No
SR-76					
South of Old River Road	Residential/Commercial	72.5	73.4	0.9	No
Between Old River Road and North River Road	Agricultural	73.1	73.9	0.8	No
Between North River Road and Olive Hill Road	Commercial	72.9	73.8	0.9	No
Between Olive Hill Road and South Mission Road	Commercial	74.0	74.9	0.9	No

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Calculated Traffic Noise Levels at 25 Feet from Roadway CNEL (dBA)			
		Existing (A)	Future with Project (B)	Cumulative Increment (B-A)	Exceed Threshold?
Between South Mission Road and Via Monserate	Residential/Commercial	70.1	71.0	0.9	No
Between Via Monserate and Gird Road	Residential/Commercial	70.3	71.1	0.8	No
Between Gird Road and Old Highway 395	Residential/ Agricultural	70.7	71.6	0.9	No
North of Old Highway 395	Agricultural	70.5	71.4	0.9	No
Knottwood Way					
West of Gird Road	Residential	54.1	55.4	1.3	No
Via Monserate					
West of SR-76	Residential/ Agricultural	55.9	57.5	1.6	No
South Mission Road					
West of R-76	Commercial/ Agricultural	69.7	70.6	0.9	No
Olive Hill Road					
West of SR-76	Commercial	64.8	65.9	1.1	No
East of SR-76	School/Religious	66.7	67.8	1.2	No
Camino Del Rey					
Between Old River Road and Lilac Road	School/Commercial	66.3	67.4	1.1	No
East of Lilac Road	Residential	65.5	66.5	1.0	No
Lilac Road					
North of Camino Del Rey	Residential/Commercial	59.8	60.8	1.0	No
Old River Road					
South of Camino Del Rey	School/Religious	58.9	60.0	1.1	No

SOURCE: ESA, 2017.

Exposure to Vibration Levels

Due to the rapid attenuation characteristics of ground-borne vibration and distance from each of the Related Projects to the project site, there is no potential for cumulative construction- or operational-period impacts with respect to ground-borne vibration. Therefore, cumulative impacts would be less than significant.

Permanent Increase in Ambient Noise Levels

As discussed above, none of the related projects are located within the immediate project vicinity and therefore onsite stationary noise sources from the proposed project and related projects would not be cumulatively considerable. Cumulative mobile source noise impacts would be created by traffic from all related projects throughout a larger vicinity. As shown in Table 3.11-13, cumulative traffic noise would not result in permanent increases in ambient noise levels in the project vicinity. Therefore, cumulative impacts would be less than significant.

Temporary Increase in Ambient Noise Levels

As discussed above, none of the related projects are located within the immediate project vicinity and therefore onsite construction noise would not be cumulatively considerable. Off-site construction vehicle noise associated with the related projects are located in different areas and to some extent would have varied haul routes and traffic patterns. Therefore, cumulative temporary increases in ambient noise related to on- and off-site construction sources would be less than significant.

As discussed above, the proposed project would result in significant and unavoidable increases in periodic noise related to the ringing of school bells. Because none of the related projects are located in the project area, the proposed project together with related projects would not result in cumulative periodic increases in operational noise. However, because the proposed project would result in significant impacts, project contributions to the cumulative noise environment would be significant.

3.11.7 References

American Journal of Audiology, 1998. *Vol.7 21-25 October 1998. doi:10.1044/1059-0889(1998/012)*. 1998.

California Department of Transportation (Caltrans), 2013a. *Technical Noise Supplement (TeNS)*. September 2013.

———, 2013b. *Transportation and Construction Vibration Guidance Manual*. September 2013.

City of Moreno Valley, 2015. *Moreno Valley Walmart Noise Impact Analysis.* February 2015.

City of Pomona, 2014. *Pomona Ranch Plaza Walmart Expansion Project.* August 2014.

County of San Diego (County), 2009. *General Plan Noise Element.* 2009.

Federal Highway Administration (FHWA), 2011. Noise Barrier Design Handbook, Acoustical Considerations. Available at: https://www.fhwa.dot.gov/environment/noise/noise_barriers/design_construction/design/design03.cfm, accessed September 2017

———, 2006. *Roadway Construction Noise Model User's Guide.* January 2006.

Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment.* May 2006.

United States Environmental Protection Agency (USEPA), 1974. *EPA Identifies Noise Levels Affecting Health and Welfare.* April 1974.

University of Michigan, Department of Health Science, 2015. *Noise Navigator Sound Level Database.* June 2015.

3.12 Public Services

This section evaluates potential impacts related to public services, including fire protection, police protection, and schools.

3.12.1 Environmental Setting

Fire Protection

The project site is located within the Fallbrook Community Plan area, which is served by the North County Fire Protection District (NCFPD).

The NCFPD provides fire and emergency services to the Community of Fallbrook. The NCFPD has six stations that serve 50,000 people within its 92-square-mile primary service area. The NCFPD also provides emergency medical services over an additional 40-square-mile area outside the primary service area. The NCFPD has a total of 131 personnel, including volunteers. Each station has a Type 1 fire engine with full paramedic-level equipment to respond to structure fires and medical emergencies. The two nearest stations are staffed with one captain, one engineer, two firefighters/paramedics, and one reserve firefighter. The NCFPD also owns several Type 3 engines to fight vegetation fires (NCFPD, 2017a).

The NCFPD responded to a total of 5,280 calls for service in 2016. Those calls consisted of 91 fire responses, eight rupture/explosion responses, 3,608 EMS/Rescue responses, 52 hazardous condition responses, 454 service calls, 865 good intent calls, 187 false calls, and 15 special incident responses (NCFPD, 2017c). As established by the County's General Plan, the County strives to maintain a 10-minute response time from fire stations to Semi-Rural Residential areas (County, 2011).

Stations closest to the project area include Fire Station 5 located at 5906 Olive Hill Road, Bonsall, which is 3.1 miles to the southwest via State Route 76 (SR-76), and Fire Station 4 located at 4375 Pala Mesa Drive, Fallbrook, which is approximately 3.6 miles northeast of the project area. **Table 3.12-1** provides additional details about each of these NCFPD stations.

TABLE 3.12-1
FIRE STATIONS SERVING PROJECT AREA

Station	Equipment	2016 Calls
Station 5, 5906 Olive Hill Road, Bonsall	1 fire engine, 1 medic ambulance, 1 Office of Emergency Services (OES) 306 tanker[1]	978
Station 4, 4375 Pala Mesa Drive, Fallbrook	1 medic engine, 1 medic ambulance, 1 brush truck	838

1. The California Office of Emergency Services (OES) Fire and Rescue Division, manages State owned "All Risk" Fire Engines, Water Tenders and Specialized Rescue Equipment to augment local government response in support of the State Master Mutual Aid Program.

SOURCE: NCFPD 2017b, Cal OES 2017

Response time from both stations is approximately 7 minutes.

Police Protection

The project site is located within the Fallbrook Community Plan area, which is served by the San Diego County Sheriff's Department (SDCSD). The SDCSD comprises 4,319 staff who serve a population of 52,000 residents over 137 square miles and received 288,975 public calls for service between 2015 and 2016 (County, 2016). The SDCSD is organized in six general service areas: Office of the Sheriff, Law Enforcement Services, Detention Facility Services, Court Services, Human Resource Services, and Management Services. The Law Enforcement Bureau employs approximately 1,300 personnel, of which approximately 900 are sworn deputies (SDCSD, 2017).

The nearest Patrol Station to the project area is the Fallbrook Substation located at 388 East Alvarado Street, approximately 7.3 miles northwest of the project area. The unincorporated communities of Fallbrook, Bonsall, Rainbow, and De Luz are served by this substation, which is considered the largest substation in the SDCSD. The Fallbrook Substation responded to over 15,000 calls for service in 2015.

Schools

The Bonsall Unified School District (BUSD or District) provides education services to the City of Oceanside as well as the unincorporated communities of Bonsall, Fallbrook, Pala/Pauma Valley, Pendleton/De Luz, Rainbow, and Valley Center. According to the California Department of Education, BUSD had an enrollment of 2,859 students for the 2016-2017 school year (DOE, 2017). BUSD offers four public school sites: Bonsall High School, Sullivan Middle School, Bonsall Elementary, and Bonsall West Elementary (BUSD, 2017a). Existing enrollment capacity, enrollment for the 2016-2017 school year, and projected future enrollment for the 2021-2022 school year is summarized on **Table 3.12-2** (BUSD, 2017b). The proposed project would include construction of a new high school site to serve the existing population within BUSD boundaries.

TABLE 3.12-2
BUSD SCHOOLS

Grade Level	Number of Classrooms	Enrollment Capacity	2016-2017 Enrollment	2021-2022 Enrollment Projection	Excess (Deficient) Capacity for 2021-2022
K-5	70	1,728	1,656	1,832	(104)
6-12	48	1,211	808	1,505	(294)

SOURCE: BUSD 2017b

3.12.2 Regulatory Setting

State

California Department of Education

The California Department of Education (CDE) administers California's public education system at the State level and the State Board of Education, by statute, is the governing and policy-determining body of the CDE. The Board adopts rules and regulations for the government of the State's public schools. It also adopts curriculum frameworks in core subject-matter areas, approves academic standards for content and student performance in the core curriculum area, and adopts tests of the Standardized Testing and Reporting program and the California High School Exit Examination.

Assembly Bill 16

In 2002, Assembly Bill (AB) 16 created the Critically Overcrowded School Facilities program, which supplements the new construction provisions within the School Facilities Program (SFP). SFP provides State funding assistance for two major types of facility construction projects: new construction and modernization. The Critically Overcrowded School Facilities program allows school districts with critically overcrowded school facilities, as determined by the CDE, to apply for new construction projects in advance of meeting all SFP new construction program requirements. Districts with SFP new construction eligibility and school sites included on a CDE list of source schools may apply.

Local

San Diego County General Plan

The San Diego County General Plan is a framework for the future growth and development of the unincorporated areas of the County. It is based on a set of guiding principles designed to protect the County's unique and diverse natural resources. It reflects an environmentally sustainable approach to planning that balances the need for adequate infrastructure, housing, and economic vitality, while maintaining and preserving each unique community within the County, agricultural areas, and extensive open space.

Land Use (LU)

Goal LU-17: Adequate Education. Quality schools that enhance our communities and mitigate for their impacts.

> **Policy LU-17.2:** Compatibility of Schools with Adjoining Uses. Encourage school districts to minimize conflicts between schools and adjacent land uses through appropriate siting and adequate mitigation, addressing such issues as student drop-off/pick up locations, parking access, and security.

The purpose of the Safety Element (S) is to include safety considerations in the planning and decision-making process by establishing policies related to future development that will minimize the risk of personal injury, loss of life, property damage, and environmental damage associated with natural and man-made hazards.

Fire Hazards

Goal S-3: Minimized Fire Hazards. Minimize injury, loss of life, and damage to property resulting from structural or wildland fire hazards.

Policy S-3.1: Defensible Development. Require development to be located, designed, and constructed to provide adequate defensibility and minimize the risk of structural loss and life safety resulting from wildland fires.

Policy S-3.2: Development in Hillsides and Canyons. Require development located near ridgelines, top of slopes, saddles, or other areas where the terrain or topography affect its susceptibility to wildfires to be located and designed to account for topography and reduce the increased risk from fires.

Policy S-3.3: Minimize Flammable Vegetation. Site and design development to minimize the likelihood of a wildfire spreading to structures by minimizing pockets or peninsulas, or islands of flammable vegetation within a development.

Policy S-3.4: Service Availability. Plan for development where fire and emergency services are available or planned.

Policy S-3.5: Access Roads. Require development to provide additional access roads when necessary to provide for safe access of emergency equipment and civilian evacuation concurrently.

Policy S-3.6: Fire Protection Measures. Ensure that development located within fire threat areas implement measures that reduce the risk of structural and human loss due to wildfire. Mitigation measures include, but are not limited to, the use of ignition resistant materials, multiple ingress and egress routes, and fire protection systems.

Policy S-3.7: Fire Resistant Construction. Require all new, remodeled, or rebuilt structures to meet current ignition resistance construction codes and establish and enforce reasonable and prudent standards that support retrofitting of existing structures in high fire threat areas.

Goal S-5: Regional Fire Protection. Regional coordination among fire protection agencies.

Policy S-5.1: Regional Coordination Support. Advocate and support regional coordination among fire protection and emergency service providers.

Policy S-5.2: Fire Service Provider Agreements. Encourage agreements between fire service providers to improve fire protection and to maximize service levels in a fair, efficient, and cost effective manner.

Policy S-5.3: Reassessment of Fire Hazards. Coordinate with fire protection and emergency service providers to reassess fire hazards after wildfire events to adjust fire prevention and suppression needs, as necessary, commensurate for both short and long term fire prevention needs.

Goal S-6: Adequate Fire and Medical Services. Adequate levels of fire and emergency medical services (EMS) in the unincorporated County.

Policy S-6.3: Funding Fire Protection Services. Require development to contribute its fair share towards funding the provision of appropriate fire and emergency medical services as determined necessary to adequately serve the project.

Policy S-6.4: Fire Protection Services for Development. Require that new development demonstrate that fire services can be provided that meets the minimum travel times identified in Table S-1 (Travel Time Standards from Closest Fire Station).

Policy S-6.5: Concurrency of Fire Protection Services. Ensure that fire protection staffing, facilities and equipment required to serve development are operating prior to, or in conjunction with, the development. Allow incremental growth to occur until a new facility can be supported by development.

Law Enforcement

Goal S-12: Adequate Law Enforcement Facilities. Timely development of law enforcement facilities in locations that serve the unincorporated areas of the County.

Policy S-12.1: New Law Enforcement Facilities. Coordinate new law enforcement facilities and services with new development in ways that sustain the provision of comprehensive services at levels consistent with substantially similar areas of the County.

Goal S-13: Safe Communities. Law enforcement facilities and services that help maintain safe communities.

Policy S-13.1: Sheriff Facility Locations. Locate Sheriff facilities to best serve existing and planned development and the corresponding demand for services.

Policy S-13.2: Sheriff Facilities in Non-Residential Areas. Locate future Sheriff facilities in commercial, industrial, or mixed-use areas; they may also be located within residential areas when other sites are unavailable or unsuitable based on circulation, geography, proximity to demand, and other factors that impact the practical provision of services.

Goal S-14: Crime Prevention. Crime prevention through building and site design.

Policy S-14.1: Vehicular Access to Development. Require development to provide vehicular connections that reduce response times and facilitate access for law enforcement personnel, whenever feasible.

Policy S-14.2: Development Safety Techniques. Require development within Village areas to utilize planning and design techniques, as appropriate, that deter crime.

Policy S-14.3: Crime Prevention. Coordinate with appropriate agencies and the community to reduce crime in all neighborhoods by improving communication and relationships with communities and through educational programs that address important safety issues.

Fallbrook Community Plan

Community plans, adopted as an integral parts of the County's General Plan, are policy plans specifically created to address the issues, characteristics, and visions of communities within the County. Community plans, thus provide a framework for addressing the critical issues and concerns that are unique to a community and are not reflected in the broader policies of the

General Plan. As part of the General Plan this Community Plan is consistent with all other parts of the County's General Plan.

Land Use

Issue LU 5.1: The demands made by a growing population can only be met through careful planning and management of public utilities and community facilities.

Goal LU 5.1: Adequate and equitable financed public services and facilities to meet the demands of a growing population.

Policy LU 5.1.1: Encourage the continued upgrading of utilities and services to provide an optimum level of service through the coordination of, and cooperation between, community services, public utility companies, and County agencies.

Issue LU 5.2: A fundamental element necessary for the ultimate realization of the overall goal for Fallbrook is education.

Goal LU 5.2: A continuing high level of public and private educational opportunities and physical school facilities in the Fallbrook area where all individuals, from the preschooler to the adult retiree, have the educational resources to realize their full potential.

Policy LU 5.2.1: Encourage school sites to be selected to ensure a reasonable cost to the public, be adequate in size to serve the needs of the community, and permit safe direct access for the maximum number of students.

Policy LU 5.2.2: Provide safe walkways which serve the purpose of providing convenient access, as well as serving as bus stops, to school sites.

Safety

Refer to General Plan goals and policies.

3.12.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to Public Services if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
  - Fire Protection (see Impact 3.12-1(i), below);
  - Police Protection (see Impact 3.12-1(ii), below);
  - Schools (see Impact 3.12-1(iii), below);
  - Parks (see Section 4.1.1 in Chapter 4.0, Other CEQA Considerations); or
  - Other public facilities (see Section 4.1 in Chapter 4.0, Other CEQA Considerations).

Please see Chapter 4.1, *Impacts Found Not to Be Significant*, of this Draft EIR, for a discussion of other issues associated with the evaluation of public services where the characteristics of the

project made it clear that effects would not be significant and further evaluation in this section was not warranted.

3.12.4 Impact Analysis

Fire Protection

Impact 3.12-1(i): The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire department facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection.

The proposed project includes construction of a new high school facility to serve existing students within the BUSD service area. The proposed project would not result in increases in the rate or intensity of population growth that could increase the potential for development in areas that are not currently served by the NCFPD. The proposed project would not have a significant impact on fire response times because the project is located within the existing service area of the NCFPD. The proposed project does not propose to use large quantities hazardous materials or engage in hazardous activities that would require new or modified fire protection equipment to meet potential emergency demand. Additionally, to reduce the risk of fires and the need for fire services, the proposed project would be required to comply with the California Fire Code as adopted by the County of San Diego, which regulates hydrants, water flow, fuel modification zones, access designs, and use of fire resistant materials. Therefore, because NCFPD response times, services, and other performance objectives would not be reduced by implementation of the proposed project and impacts related to fire protection services would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Police Protection

Impact 3.12-1(ii): The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered Sheriff department facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection.

The proposed project includes construction of a new high school facility to serve existing students within the BUSD service area. The proposed project would not result in increases in the rate or intensity of population growth. The proposed project is located within the existing service area of the SDCSD and would not result in any unique or more extensive crime that cannot be addressed with the existing level of police resources. Therefore, because SDCSD response times, services, and other performance objectives would not be reduced by implementation of the proposed project and impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Schools

Impact 3.12-1(iii): The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools.

The proposed project consists of construction of a new high school facility to serve the existing students as well as students that would be generated due to currently planned or approved residential development within the BUSD service area. Development of the proposed high school would result in improved service ratios and performance objectives for high school-aged students within the BUSD boundary by providing additional classrooms, teachers, and facilities. Environmental impacts associated with development of the proposed high school are analyzed within this Draft EIR. As discussed within each impact analysis section of this Draft EIR, development of the proposed high school facility would not result in substantial adverse physical impacts. Impacts would be less than significant and no mitigation is required.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

3.12.5 Cumulative Impact Analysis

Fire Protection

The geographic context for the analysis of cumulative impacts related to fire protection is the NCFPD service area. Cumulative impacts could occur if growth within the service area required expansion of servicing facilities such as construction of a new fire station. Like the proposed project, all development projects that are proposed within the service area are reviewed by NCFPD to ensure fire detection and suppression systems, emergency access, and fire hydrants are provided, as required by the Fire Code, along with compliance to the California Building Code and the California Fire Code. Implementation of the proposed project in combination with cumulative development within the Fallbrook area could result in an increased demand for fire protection. As each individual project is developed, the NCFPD would review and consider its effect on fire protection services. As new facilities are required, environmental review would commence consistent with CEQA to evaluate and mitigate any potential environmental impacts. Implementation of the proposed project would not require the expansion of or development of new facilities and therefore impacts would not be cumulatively considerable.

Police Protection

The geographic context for the analysis of cumulative impacts related to police protection is the SDCSD service area. Cumulative impacts could occur if growth within the service area required expansion of servicing facilities such as the construction of a new sheriff station. Implementation of the proposed project in combination with cumulative development within the Fallbrook area could result in an increased demand for police protection. As each individual project is developed, the SDCSD would have the opportunity to review and consider its effect on police protection services. As new facilities are required, environmental review would commence consistent with CEQA to evaluate and mitigate any potential environmental impacts. In addition, adequate emergency access would be required for the proposed project, and all cumulative projects, pursuant to County programs, practices, and procedures. Implementation of the proposed project would not require the expansion of or development of new facilities and therefore impacts would not be cumulatively considerable.

Schools

The geographic context for the analysis of cumulative impacts related to school facilities is the BUSD service area. Cumulative impacts could occur if growth within the District required expansion of school services. The proposed project includes development of a new high school facility to serve existing high school-aged students currently living within District boundaries as well as students that would be generated due to currently planned or approved residential developments within the BUSD service area. The development of the proposed high school is in response to anticipated demand as projected by BUSD to accommodate residential development (BUSD, 2017b) and would not, in combination with related projects, result in the need for additional school facilities. Therefore, the proposed project would not result in development that could cumulatively contribute to the degradation of current levels of service within BUSD.

3.12.6 References

Bonsall Unified School District (BUSD), 2017a. Facts About BUSD. Available at: http://www.bonsallusd.com/apps/pages/facts, accessed September 2017

———, 2017b. *School Facilities Needs Analysis*. October 12

California Department of Education (DOE), 2017. District Profile: Bonsall Unified. Available at: http://www.cde.ca.gov/sdprofile/details.aspx?cds=37768510000000, accessed September 2017.

California Governor's Office of Emergency Services (Cal OES), 2017. Fleet. Available at: http://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/fleet, accessed October 25.

North County Fire Protection District (NCFPD), 2017a. Chief's Message. Available at: http://www.ncfireprotectiondistrict.org/index.html, accessed August 2017.

———, 2017b. Facilities and Stations. Available at: http://www.ncfireprotectiondistrict.org/stations.html, accessed August 2017.

———, 2017c. *Personal Correspondence*. Kevin Mahr, Division Chief – NCFPD. August 24, 2017.

San Diego County (County), 2011. *General Plan Safety Element*. August 2011.

———, 2016. County of San Diego Adopted Operational Plan, Fiscal Years 2016-17 & 2017-18. Available at: http://www.sandiegocounty.gov/content/sdc/auditor/opplan/fya16-18.html, accessed August 2017.

San Diego County Sheriff's Department (SDCSD), 2017. Law Enforcement Bureau. Available at: http://www.sdsheriff.net/about_lesb.html, accessed September 2017.

3.13 Transportation and Traffic

This section provides an assessment of potential impacts related to transportation and traffic that could result from implementation of the proposed project. Potential impacts addressed in this section are associated with conflicts with a plan, ordinance. or policy establishing measures of effectiveness for the performance of the circulation system; introduction of safety/risk elements related to air traffic, traffic hazards, and emergency vehicle access; and conflicts with adopted plans related to alternative transportation modes (transit, pedestrian, bicycle). The analysis in this section is primarily based on the Bonsall High School Revised Traffic Impact Analysis (Kunzman Associates, 2017), which is included as Appendix Q of this Draft EIR.

3.13.1 Environmental Setting

Existing Traffic Circulation Network

Regional Roadways

State Route 76

State Route 76 (SR 76) connects Interstate 5 (in Oceanside) with SR 79 in the North Mountain region east of Pala/Pauma Valley, and also provides access to Interstate 15. This east-west route generally has four lanes, with six lanes between Olive Hill Road/Camino Del Rey and South Mission Road.[1] SR 76 is classified as a Prime Arterial roadway west of South Mission Road and a Major Road east of South Mission Road in the County of San Diego Mobility Element. There are generally no sidewalks or designated bicycle facilities on SR 76 within the study area; on-street parking is prohibited. SR 76 has had major capacity and safety improvements made in the vicinity of the project site in the past several years.

Local Roadways

Local roads in the study area have two lanes with no sidewalks, and no on-street parking allowed. Gird Road, with paved shoulders of varied widths, is used by bicyclists, but there are no formal bike lanes, and it is not a designated bike route. Roadways that are expected to be used for some project-generated trips are as follows (with classification in the County of San Diego Mobility Element):

North-South

- Gird Road (Light Collector)
- Via Monserate (Minor Collector)
- Old River Road (Prime Arterial)
- East Vista Way (Major Road)
- Old Highway 395 (Boulevard Series north of SR 76; Community Collector south of SR 76)

[1] Widening of the segment of SR 76 between South Mission Road and I-15 from two lanes to four lanes was completed in May 2017.

East-West

- Olive Hill Road (Light Collector)
- Camino Del Rey (Boulevard Series)
- Lilac Road (Light Collector)
- North River Road (Major Road)

Public Transportation

The project area is currently served by North County Transit District Route 306 along SR 76/South Mission Road; however, no transit routes/stops are located within 1/4-mile of the project site. There is an existing Park-and-Ride lot located near the southeast corner of Old Highway 395 and SR 76.

Bicycle and Pedestrian Facilities

There are generally no sidewalks or designated bicycle facilities in the project vicinity. However, as described above, Gird Road, with paved shoulders of varied widths but no formal bike lanes, or designation as a bike route, is used by bicyclists.

Existing Traffic Volumes and Levels of Service

Based on guidance contained in the SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region (March 2000), the following 11 intersections were selected for study:

No.	Study Intersection	Jurisdiction
1	SR 76 at Old River Road/East Vista Way	Caltrans
2	SR 76 at North River Road	Caltrans
3	SR 76 at Olive Hill Road/Camino Del Rey	Caltrans
4	SR 76 at South Mission Road	Caltrans
5	Old River Road [West] at Camino Del Rey	County
6	Old River Road [East] at Camino Del Rey	County
7	Lilac Road at Camino Del Rey	County
8	SR 76 at Via Monserate	Caltrans
9	Gird Road at Knottwood Way	County
10	Gird Road at SR 76	Caltrans
11	Old Highway 395 at SR 76	Caltrans

Existing peak hour traffic volumes are based upon morning and evening peak period intersection turning movement counts conducted in May/June 2016 during typical weekday conditions. Typically, there are two peak periods in a weekday; the morning peak period was counted between 7:00 AM and 9:00 AM and the evening peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the peak period is the four consecutive 15-minute periods with the highest total volume when all movements are added together. Traffic counts obtained in

June were adjusted to account for seasonal adjustments representative of local school traffic patterns.

Standard analysis practices use a rating system of level of service (LOS) to measure the operating conditions (degree of delay/congestion) of intersections, with LOS A representing free-flowing traffic, and LOS F representing extreme congestion. LOS E, and F are considered by the County to be unacceptable. For intersections, LOS is based on the weighted average delay (seconds per vehicle) of the overall intersection for intersections with traffic signal or all-way stop control. For intersections with side-street stop control, LOS is based on average delay of the worst individual movement.

As shown in **Table 3.13-1**, the study area intersections currently operate at acceptable LOS during the peak traffic hours. It is noted that the intersection of SR 76 / Via Monserate was recently signalized, and the unacceptable LOS F conditions for the side-street stop-controlled intersection (at the time of the 2016 traffic counts) have been improved to an acceptable LOS B.

TABLE 3.13-1
EXISTING INTERSECTION LEVEL OF SERVICE (LOS) AND DELAY (SECONDS PER VEHICLE)

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1. SR 76 / East Vista Way – Old River Road	Signal	25.1	C	38.3	D
2. SR 76 / North River Road	Signal	18.3	B	12.8	B
3. SR 76 / Olive Hill Road – Camino Del Rey	Signal	33.0	C	36.1	D
4. SR 76 / South Mission Road	Signal	26.9	C	20.6	C
5. Old River Road (West) / Camino Del Rey	SSSC[a]	23.8	C	20.7	C
6. Old River Road (East) / Camino Del Rey	SSSC[a]	12.0	B	10.8	B
7. Lilac Road / Camino Del Rey	SSSC[a]	22.4	C	19.3	C
8. SR 76 / Via Monserate	SSSC/ Signal[b]	100.9 13.1	F B	114.5 12.4	F B
9. Gird Road / Knottwood Way	SSSC[a]	9.9	A	10.3	B
10. Gird Road / SR 76	Signal	15.4	B	15.2	B
11. Old Highway 395 / SR 76	Signal	20.3	C	39.9	D

NOTES:

[a] SSSC = Side-Street Stop Control

[b] SSSC/Signal = SR 76 / Via Monserate was a Side-Street Stop-Control intersection at the time of traffic counts in May 2016, but was signalized as part of the State Route 76 East Segment Project, which was completed in May 2017.

SOURCE: Kunzman Associates, 2017

3.13.2 Regulatory Setting

State

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for the design, construction, maintenance, and operation of the California state highway system, as well as that portion of the interstate highway system within the state's boundaries. Caltrans District 11 serves San Diego and Imperial Counties. State Route 76 is under Caltrans District 11 jurisdiction.

Traffic Congestion Relief and Spending Limitation Act

The Traffic Congestion Relief and Spending Limitation Act (State Proposition 111) was passed by voters in 1990 and established a requirement that urbanized areas prepare and regularly update a Congestion Management Program (CMP) to monitor the performance of the roadway transportation system, develop programs to address near-term and long-term congestion, and better integrate transportation and land use planning. The San Diego Association of Governments (SANDAG) is the designated Congestion Management Agency for the San Diego region. Although SANDAG provided regular updates for the state CMP from 1991 through 2008, the San Diego region elected to opt out of (be exempt from) the state CMP in October 2009. Since that decision, SANDAG has been abiding by the Federal Highway Administration's 23 CFR 450.320 to ensure the region's continued compliance with the federal congestion management process (SANDAG, 2017), including development of a regional transportation plan as described below.

Regional

San Diego Association of Governments 2050 Regional Transportation Plan

"San Diego Forward: The Regional Plan" was adopted by SANDAG on October 9, 2015. This document serves as a regional transportation plan (RTP) for the San Diego area with the goal of creating transportation choices that will lead to healthier communities, healthier people, and a healthier environment. The plan is designed to cover present day through the year 2050 and discusses sustainable community strategies, financial strategies, RTP benefits, and implementation actions for the RTP. RTP appendices contain information related to transportation projects, social equity, and regional growth forecasting. The RTP meets the state requirements for developing programmatic mitigation plans to address environmental impacts of future transportation projects (23 CFR 450.320) by incorporating various federal congestion management processes.

Local

County of San Diego General Plan

Mobility Element

The Mobility Element provides a framework for a balanced multi-modal transportation system for the movement of people and goods within the unincorporated areas of the County of San Diego. A balanced system uses multiple modes of travel including motor vehicles, public transportation, bicycles, pedestrians, and to a lesser extent, rail and air transportation. While the automobile is the predominant mode of travel in the unincorporated County due largely to its rural character, opportunities for increased mode choice are addressed in this Element.

The Mobility Element's goals and policies are based on and reflective of a number of the Guiding Principles for the General Plan. A central theme is support for a multi-modal transportation network that enhances connectivity and supports existing development patterns while retaining community character and maintaining environmental sustainability by reducing gasoline consumption and greenhouse gas emissions. The following goals and policies are relevant to the proposed project:

Goal M-2: **Responding to Physical Constraints and Preservation Goals.** A road network that provides adequate capacity to reasonably accommodate both planned land uses and regional traffic patterns, while supporting other General Plan goals such as providing environmental protections and enhancing community character.

M-2.1: Level of Service Criteria. Require development projects to provide associated road improvements necessary to achieve a level of service of "D" or higher on all Mobility Element roads except for those where a failing level of service has been accepted by the County pursuant to the criteria specifically identified in the accompanying text box (Criteria for Accepting a Road Classification with Level of Service E/F). When development is proposed on roads where a failing level of service has been accepted, require feasible mitigation in the form of road improvements or a fair share contribution to a road improvement program, consistent with the Mobility Element road network

M-2.2: Access to Mobility Element Designated Roads. Minimize direct access points to Mobility Element roads from driveways and other non-through roads to maintain the capacity and improve traffic operations.

Goal M-4: Safe and Compatible Roads. Roads designed to be safe for all users and compatible with their context.

M-4.4: Accommodate Emergency Vehicles. Design and construct public and private roads to allow for necessary access for appropriately-sized fire apparatus and emergency vehicles while accommodating outgoing vehicles from evacuating residents.

3.13.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to Transportation and Traffic if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit (see Impact 3.13-1, below);
- Conflict with an applicable congestion management program including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways (see Impact 3.13-2, below);
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks (see Impact 3.13-3, below);

- Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment) (see Impact 3.13-4, below);
- Result in inadequate emergency access (see Impact 3.13-5, below); or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities (see Impact 3.13-6, below).

The County of San Diego has established LOS D as the baseline goal for acceptable LOS at an intersection. LOS E or F are considered deficient, and a degradation of a service level from acceptable (LOS A through LOS D) to unacceptable (LOS E or F) caused by project-generated trips would be considered a significant impact. The impact at a County of San Diego intersection with an existing LOS E or F without project traffic is considered to be significant if the addition of project-generated trips results in one of the following conditions:

LOS	Signalized Intersection	Unsignalized Intersection
E	> 2 seconds delay increase	> 20 peak hour trips on a critical movement
F	> 1 second delay increase, or > 5 peak hour trips on a critical movement	> 5 peak hour trips on a critical movement

SOURCE: County of San Diego, Guidelines for Determining Significance, August 2011.

Based on the Caltrans-established target LOS E for SR 76, a project traffic impact is considered significant if the addition of project-generated trips causes or worsens LOS F at a study intersection located on SR 76.

3.13.4 Methodology

Intersection Analysis Methodology

To assess the performance of an intersection, both the County of San Diego and Caltrans use the intersection delay method based on the procedures contained in the Highway Capacity Manual (Transportation Research Board, 2010). The methodology compares the volume of traffic travelling through the intersection to the capacity of the intersection to calculate the vehicle delay associated with the traffic control at the intersection. The intersection control delay is then correlated to LOS based on the following thresholds:

	Intersection Control Delay (Seconds / Vehicle)	
LOS	**Signalized**	**Unsignalized**
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

SOURCE: Transportation Research Board, Highway Capacity Manual, 2010.

The following four scenarios have been analyzed:

- Existing Conditions
- Existing Plus Project Conditions
- 2025 Without Project Conditions
- 2025 with Project Conditions

3.13.5 Impact Analysis

Traffic Increase

Impact 3.13-1: The project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

Construction

Construction of the project would be completed in two phases. Phase 1 and Phase 2 grading and site preparation and undergrounding of utilities is expected to commence in fall 2019 and would last approximately three months. Building construction and development of the driveway, parking lot, landscaping, and lighting would last approximately 13 months. Phase 2 building construction and landscaping would begin in spring 2023. Phase 1 would be operational by summer 2021 and Phase 2 would be operational by summer 2025. Offsite Gird Road improvements would be constructed in Phase 1.

Construction activities that would generate off-site traffic would include the delivery of construction vehicles and equipment to the project site at the start of construction (and its removal

at the end of construction), and the daily arrival and departure of construction workers. An average of 50 construction workers is expected to be onsite on a daily basis, although the number can increase or decrease depending on individual construction tasks. Project grading would be balanced onsite and would not require import or export material to create finished pads for building construction. The proposed project would construct a left-turn lane on northbound Gird Road at the project driveway, which would entail pavement widening and restriping (within the roadway right-of-way) on the east side of Gird Road. Acceleration/deceleration transition areas are proposed adjacent to the access driveway on the west side of Gird Road.

Although the proposed project would add construction-related traffic to local area roadways, the traffic increase would be short-term in nature and would not result in any long-term degradation in operating conditions on local roadways. The new northbound left-turn lane on Gird Road would be completed in conformance with County of San Diego Public Works standards, including measures to maintain and control traffic movements (including that by emergency service vehicles) through the construction zone. Impacts related to performance of the circulation system during project construction would be less than significant.

Operation

Table 3.13-2 shows the estimated number of project vehicle trips based on trip generation rates published in the Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (SANDAG, 2002). As shown in the table, buildout of the proposed project would generate approximately 1,950 daily trips, 390 trips of which would occur during the morning peak hour and 195 trips of which would occur during the evening peak hour.

TABLE 3.13-2
PROJECT TRIP GENERATION

				AM Peak Hour			PM Peak Hour		
Land Use	**Units**	**Trips**	**Daily**	**Total**	**In**	**Out**	**Total**	**In**	**Out**
High School	1,500 Students	Trips/Student	1.30	0.26	0.18	0.08	0.13	0.05	0.08
		Trips	**1,950**	**390**	**270**	**120**	**195**	**75**	**120**

SOURCE: San Diego Association of Governments (SANDAG), Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.

The estimated distribution of project trips on the area road network is based on review of the high school attendance boundary, existing traffic data, surrounding land uses, and the local and regional roadway facilities in the project vicinity. The study intersection delay and LOS for Existing Plus Project traffic conditions are shown in **Table 3.13-3**. As shown in the table, the study area intersections are projected to operate within acceptable LOS during the peak hours for Existing Plus Project traffic conditions. Therefore, impacts related to performance of the circulation system during project operation would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

TABLE 3.13-3
EXISTING PLUS PROJECT SIGNIFICANT IMPACT EVALUATION

Intersection	Traffic Control[a]	Morning Peak Hour					Evening Peak Hour				
		Without Project		With Project		Significant Impact?	Without Project		With Project		Significant Impact?
		Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	
1. SR 76 / East Vista Way –Old River Road	Signal	25.1	C	25.2	C	No	38.3	D	38.7	D	No
2. SR 76 / North River Road	Signal	18.3	B	21.1	C	No	12.8	B	12.9	B	No
3. SR 76 / Olive Hill Road –Camino Del Rey	Signal	33.0	C	36.5	D	No	36.1	D	40.6	D	No
4. SR 76 / South Mission Road	Signal	26.9	C	28.3	C	No	20.6	C	24.0	C	No
5. Old River Road (West) / Camino Del Rey	SSSC	23.8	C	29.7	D	No	20.7	C	22.4	C	No
6. Old River Road (East) / Camino Del Rey	SSSC	12.0	B	12.2	B	No	10.8	B	11.0	B	No
7. Lilac Road / Camino Del Rey	SSSC	22.4	C	24.8	C	No	19.3	C	20.5	C	No
8. SR 76 / Via Monserate	Signal	13.1	B	13.6	B	No	12.4	B	12.4	B	No
9. Gird Road / Knottwood Way	SSSC	9.9	A	10.1	B	No	10.3	B	10.5	B	No
10. Gird Road / SR 76	Signal	15.4	B	54.4	D	No	15.2	B	24.6	C	No
11. Old Highway 395 / SR 76	Signal	20.3	C	22.2	C	No	39.9	D	42.1	D	No

[a] SSSC = Side-Street Stop Control

SOURCE: Kunzman Associates, 2017

Congestion Management Program

Impact 3.13-2: The project would not conflict with an applicable congestion management program including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

State Proposition 111, passed by voters in 1990, established a requirement that urbanized areas prepare and regularly update a Congestion Management Program (CMP). Although SANDAG provided regular updates for the state CMP from 1991 through 2008, the San Diego region elected to opt out of (be exempt from) the state CMP in October 2009. As such, there is no relevance of the project to potential conflicts with an applicable CMP, and no impact would occur.

Mitigation Measures

No mitigation measures are required.

Significance Determination: No Impact

Air Traffic

Impact 3.13-3: The project would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

The proposed project would not include any components that would result in a change in air traffic patterns or volumes. The closest airport to the project site is the Fallbrook Airpark, which is located approximately 4 miles northwest of the project site. The project would neither change air traffic patterns, nor involve the installation of structures that could interfere with air space. No impacts would occur.

Mitigation Measures

No mitigation measures are required.

Significance Determination: No Impact

Design Hazards

Impact 3.13-4: The project would not substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment).

The proposed project would not alter the physical configuration of the existing roadway network serving the area except for the provision of a new access point (site driveway), a left-turn lane on northbound Gird Road at the project driveway, and a southbound transition to the driveway. As shown in Figure 2-3, these improvements would be completed within the existing Gird Road right-of-way, and would not introduce unsafe design features or vehicles incompatible with

existing traffic. The proposed project driveway and improvements to Gird Road would be completed in conformance with County of San Diego Public Works and Fire Department standards, including provisions for sight distance requirements. Therefore, project impacts related to traffic safety hazards would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Emergency Access

Impact 3.13-5: The project would not result in inadequate emergency access.

The proposed project is served by an existing roadway network that accommodates the movements of emergency vehicles that travel in the area. The proposed project would not introduce any impedance to access for emergency vehicles to the surrounding area. The proposed project driveway would be constructed in conformance with County of San Diego Public Works and North County Fire Protection District standards, including provisions for sight distance requirements. The access driveway would be designed to split lanes to allow for adequate onsite queuing and emergency access, with both lanes being used if needed for either ingress or egress. Project impacts related to emergency access would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Public Transit, Bicycle and Pedestrian Facilities

Impact 3.13-6: The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Due to the rural character of the region, there are generally no existing sidewalks or designated bicycle facilities in the project vicinity. As described above, Gird Road is used by bicyclists, but has no formal bike lanes and is not designated as a bike route. The study area is currently served by North County Transit District Route 306 along SR 76-South Mission Road; however, no transit routes/stops are located within 1/4-mile of the project site. The proposed project would not directly or indirectly eliminate alternative modes of transportation, transportation corridors, or facilities. Further, the proposed project would not prevent the use of any roads on which public transit routes operate or prevent the use of Gird Road by bicyclists. Therefore, project impacts related to public transit, bicycle and pedestrian facilities would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

3.13.6 Cumulative Impact Analysis

Traffic Increase

To assess future traffic conditions, existing traffic is combined with ambient growth and trips generated by other nearby developments, and then with project-generated trips. For purposes of this analysis, the project is analyzed at ultimate buildout in Year 2025.

For ambient growth, existing traffic volumes were increased by approximately two percent per year over a nine-year period. This is a conservative assumption because the ambient growth rate was applied to all movements at the study intersections. The ambient growth rate was derived based on the average annual growth rates noted in the *Transportation Concept Report for State Route 76* (Caltrans, 2016).

In addition, a list of 209 "other development" projects (from the County Planning and Development Services self-service report for Newly Created Building Records) within the past five years was reviewed for relevance to this analysis. It was determined that future trips forecast to be generated by five "other development" projects were relevant, and those trips were assigned to the study area, as appropriate.

As shown in **Table 3.13-4**, the study intersections are projected to operate within acceptable LOS during the peak hours for Year 2025 Without Project traffic conditions, with the exception of Old River Road [West] / Camino Del Rey (Intersection #5), which is forecast to operate at LOS E during the morning peak hour. With the addition of project-generated trips, all but the following study intersections would operate within acceptable LOS:

#5 Old River Road [West] / Camino Del Rey (LOS F in morning peak hour, and LOS E in evening peak hour)

#7 Lilac Road / Camino Del Rey (LOS E in morning peak hour only)

As shown in Table 3.13-4, the proposed project would result in a significant traffic impact at the Old River Road [West] / Camino Del Rey intersection because of the project-caused degradation of peak-hour service levels. The impact at the unsignalized Lilac Road / Camino Del Rey intersection would be less than significant because the project-generated increase in traffic volumes at the intersection would not exceed the threshold of significance (more than 20 peak-hour trips on a critical movement) established by the County. The impacts of the proposed project at all other study intersection would not have the potential to combine with impacts of cumulative projects to result in a significant impact.

TABLE 3.13-4
CUMULATIVE (YEAR 2025) PLUS PROJECT SIGNIFICANT IMPACT EVALUATION

Intersection	Traffic Control[a]	Morning Peak Hour					Evening Peak Hour				
		Without Project		With Project		Significant Impact?	Without Project		With Project		Significant Impact?
		Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	
1. SR 76 / East Vista Way –Old River Road	Signal	25.7	C	26.3	C	No	52.6	D	53.1	D	No
2. SR 76 / North River Road	Signal	31.2	C	38.6	D	No	20.0	B	20.3	B	No
3. SR 76 / Olive Hill Road –Camino Del Rey	Signal	45.5	D	50.6	D	No	47.2	D	52.9	D	No
4. SR 76 / South Mission Road	Signal	37.9	D	39.2	D	No	34.9	C	36.4	C	No
5. Old River Road (West) / Camino Del Rey	SSSC	40.4	E	**58.9**	**F**	**Yes**	32.6	D	**37.1**	**E**	**Yes**
6. Old River Road (East) / Camino Del Rey	SSSC	13.4	B	13.7	B	No	11.8	B	12.0	B	No
7. Lilac Road / Camino Del Rey	SSSC	31.2	D	35.2	E	No[b]	26.1	D	28.2	D	No
8. SR 76 / Via Monserate	Signal	16.7	B	19.1	B	No	14.4	B	15.5	B	No
9. Gird Road / Knottwood Way	SSSC	10.4	B	10.4	B	No	10.7	B	10.9	B	No
10. Gird Road / SR 76	Signal	10.8	B	20.5	C	No	9.7	A	13.8	B	No
11. Old Highway 395 / SR 76	Signal	16.3	B	17.3	B	No	22.5	C	22.8	C	No
12. Gird Road / Site Access Driveway	SSSC	n/a	n/a	13.0	B	No	n/a	n/a	10.6	B	No

[a] SSSC = Side-Street Stop Control

[b] The impact would be less than significant because the project-generated increase in traffic volumes at the intersection would not exceed the threshold of significance (more than 20 peak-hour trips on a critical movement) established by the County.

SOURCE: Kunzman Associates, 2017

Of note, the proposed project driveway (stop-sign-controlled for vehicles leaving the site) would operate within an acceptable LOS during the peak hours (see Table 3.13-4).[2] Based on the forecast traffic volumes and guidance provided in the National Cooperative Highway Research Program Report 745, "Left-Turn Accommodations at Unsignalized Intersections" (TRB, 2013), a northbound left-turn lane on Gird Road would be required at the project driveway.

Significance Determination: Potentially Significant

Mitigation Measures

TT-1: The Bonsall Unified School District would contribute fair-share funding through the County of San Diego Transportation Impact Fee program to the following improvements to the Old River Road [West] / Camino Del Rey intersection:

- Convert existing "Y" intersection into a "T" intersection
- Add an auxiliary at the west leg to allow two-stage movement from the minor street

The identified improvement is listed in the County's Five-Year Capital Improvement Plan 2016/17 to 2020/21, and Transportation Impact Fee program.

Significance after Mitigation: Less than Significant

Air Traffic

As described in Impact 3.13-3, above, the closest airport to the project site is the Fallbrook Airpark, which is located approximately 4 miles northwest of the project site. The project would neither change air traffic patterns, nor involve the installation of structures that could interfere with air space. Therefore, impacts of the proposed project would not have the potential to combine with impacts of cumulative projects to result in a significant impact.

Design Hazards

As described in Impact 3.13-4, above, the proposed project would not alter the physical configuration of the existing roadway network serving the area except for the provision of a new access point (site driveway), widening of Gird Road (within the existing right-of-way) to install a northbound left-turn lane and southbound transition at the project driveway, and would not introduce unsafe design features or vehicles incompatible with existing traffic. The proposed project driveway and improvements to Gird Road would be completed in conformance with County of San Diego Public Works and Fire Department standards, including provisions for sight distance requirements. Therefore, impacts of the proposed project would not have the potential to combine with impacts of cumulative projects to result in a significant impact related to traffic safety hazards.

[2] The proposed project driveway is not forecast to meet the minimum thresholds needed to justify installation of traffic signals based on the peak-hour signal warrant criteria (Warrant 3) contained in the California Manual on Uniform Traffic Control Devices (California Department of Transportation, 2014).

Emergency Access

As described in Impact 3.13-5, above, the proposed project would not introduce any impedance to access for emergency vehicles to the surrounding area. The proposed project driveway would be constructed in conformance with County of San Diego Public Works and North County Fire Protection District standards, including provisions for sight distance requirements. The access driveway would be designed to split lanes to allow for adequate onsite queuing and emergency access, with both lanes being used if needed for either ingress or egress. Therefore, impacts of the proposed project would not have the potential to combine with impacts of cumulative projects to result in a significant impact related to emergency access.

Public Transit

As described in Impact 3.13-6, above, the proposed project would not directly or indirectly eliminate alternative modes of transportation, transportation corridors, or facilities. Further, the proposed project would not prevent the use of any roads on which public transit routes operate. Therefore, project impacts would not have the potential to combine with impacts of cumulative projects to result in significant impacts related to public transit, bicycle and pedestrian facilities.

3.13.7 References

Caltrans, 2014. *California Manual on Uniform Traffic Control Devices*. 2014.

Caltrans, 2016. *Transportation Concept Report: State Route 76*. February 2016.

County of San Diego, 2016. *County of Department of Public Works, Five Year Capital Improvement Plan, Fiscal Years 2016/17 to 2020/21*. 2016.

Kunzman Associates, Inc., 2017. *Bonsall High School Revised Traffic Impact Analysis.* August 7, 2017.

SANDAG, 2002. *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*. 2002.

SANTEC/ITE, 2000. *Guidelines for Traffic Impact Studies in the San Diego Region*. March 2000.

Transportation Research Board, 2010. *2010 Highway Capacity Manual*. 2010.

Transportation Research Board, 2013. *NCHRP Report 745, Left Turn Accommodations at Unsignalized Intersections*. 2013.

3.14 Tribal Cultural Resources

This section provides an assessment of potential impacts related to cultural resources that could result from implementation of the proposed project. The analysis in this section is based, in part, on consultation with the Native American Heritage Commission and Native American Tribes.

3.14.1 Regulatory Setting

Assembly Bill 52 and Related Public Resources Code Sections

Assembly Bill (AB) 52 was approved by California State Governor Edmund Gerry "Jerry" Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a Notice of Preparation (NOP) or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, then that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

3.14.2 Native American Heritage Commission Sacred Lands File

The California Native American Heritage Commission (NAHC) maintains a confidential Sacred Lands File (SLF) which contains sites of traditional, cultural, or religious value to the Native American community. The NAHC was contacted on February 7, 2017 to request a search of the SLF for the project. The NAHC responded to the request in a letter dated February 9, 2017. The results of the SLF search indicate that Native American cultural resources are not known to be located within the project or in the project vicinity. The NAHC also provided a list of Native American groups and individuals who are culturally and traditionally affiliated with the region.

3.14.3 Native American Consultation

On March 20, 2017, Bonsall Unified School District mailed project notification letters to the groups and individuals on its Master List and those indicated by the NAHC to initiate government-to-government consultation pursuant to PRC Section 21080.3.1. The notification letter provided details on the project and an invitation to consult. To date, Bonsall Unified School District has received responses from three Native American groups including the Pala Band of Mission Indians, the Pauma Band of Luiseño Indians, and the San Luis Rey Band of Mission Indians. In a letter dated April 18, 2017, Shasta C. Gaughen, Tribal Historic Preservation Officer for the Pala Band of Mission Indians, stated that the project is located with Pala's Traditional Use Area (TUA), and requested that formal AB 52 consultation be initiated.

In an email dated April 13, 2017, Chris Devers, Cultural Liaison for the Pauma Band of Luiseno Indians, requested to meet with Bonsall Unified School District and attend a site visit prior to engaging in formal AB 52 consultation.

In a letter dated April 10, 2017, Merri Lopez-Keifer, Chief Legal Counsel for the San Luis Rey Band of Mission Indians, formally requested that AB 52 consultation initiated. Ms. Lopez-Kiefer

also requested that she be provided copies of any cultural resource assessments completed on the project's behalf.

In May 2017, Bonsall Unified School District met on site with representatives of the three groups indicated above and no tribal cultural resources were identified. However, the tribes requested that they be kept abreast of project developments going forward, and asked to be notified prior to mass grading.

3.14.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to aesthetics if it would:

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(l) (see Impact 3.14-1, below);
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1 the lead agency shall consider the significance of the resource to a California Native American tribe (see Impact 3.14-2, below).

3.14.4 Impact Analysis

Tribal Cultural Resources

Impact 3.14-1: The project would not result in a substantial adverse change in the significance of a tribal cultural resource and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(l).

The SLF search conducted by the NAHC does not indicate the presence of tribal cultural resources within or immediately adjacent to the project site. Furthermore, the government-to-government consultation within interested Native American groups conducted pursuant to AB 52 did not result in the identification of tribal cultural resources within the project site. Given that no tribal cultural resources have not been identified within or immediately adjacent to the project site, the project would not cause a substantial adverse change in the significance of a tribal cultural resource and no mitigation is required.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Impact 3.14-2: The project would not result in a substantial adverse change in the significance of a tribal cultural resource that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1.

As noted above, no tribal cultural resources have been identified within or immediately adjacent to the project site. As such, the project would not cause a substantial adverse change in the significance of a tribal cultural resource and no mitigation is required.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

3.15 Utilities

The following section discusses potential impacts related to utilities and services systems.

3.15.1 Environmental Setting

Water Supply

The project site is located within 78-square mile Rainbow Municipal Water District (RMWD) service area (RMWD, 2017). RMWD is a water purveyor for the unincorporated communities of Rainbow and Bonsall, a portion of the unincorporated community of Fallbrook and small portions of the cities of Vista and Oceanside. RMWD relies on the San Diego County Water Authority (SDCWA) for 100 percent of its potable and raw water supply (RMWD, 2016). SDCWA obtains its water supply from the Metropolitan Water District (MWD); MWD gets its water supply from two primary sources: 1) the State Water Project and 2) the Colorado River. SDCWA is currently pursuing a diversification of its water supplies beyond MWD to avoid shortages in the future (SDCWA, 2016).

RMWD has projected future water demand totals based on net effects of growth, conservation and other factors; water demands associated with new development was tabulated using SANDAG projections for the RMWD service area. The current RMWD service area population of 20,279 persons is expected to increase to 28,336 total persons by 2040 (RMWD, 2016). **Table 3.15-1** shows the existing and projected water demand and supply totals within the RMWD service area through the year 2040.

TABLE 3.15-1
EXISTING AND PROJECTED WATER SUPPLY AND DEMAND

	2015	2020	2025	2030	2035	2040
Water Demand						
Potable and Raw Water	20,062	20,810	20,820	20,830	20,850	20,660
Water Supply						
Purchased or Imported Water	20,062	20,810	20,820	20,830	20,850	20,660

SOURCE: RMWD 2016

As shown in Table 3.15-1, water supplies are expected to continue to meet water demands through the year 2040, solely by dependence on purchased or imported water supplies from SDCWA.

Wastewater

RMWD provides sewer service to a small portion of its service area within the San Luis Rey River Valley. The remainder of the service area is more rural in character and is unsewered. RMWD conveys all of the wastewater collected by its sewer system to the City of Oceanside San

Luis Rey Water Reclamation Plant (SLRWRP) via an outfall sewer line located in the San Luis Rey River Valley. RMWD has a contract in place with the City that allows treatment of up to 1.5 million gallons per day (mgd) at the SLWRP. However, RMWD does not currently produce this volume of wastewater; 0.54 mgd was conveyed to the SLRWRP in 2015. RMWD does not currently own or operate any recycled water distribution facilities, but is currently considering construction of a wastewater reclamation facility and recycled water distribution system that would deliver approximately 1,200 AFY of recycled water to RMWD customers (RMWD, 2016).

Solid Waste

The closest active and permitted landfill to the project site is the Las Pulgas Landfill, located 12.5 miles west of the project site. As of August of 2016, the landfill had 9,503,985 cubic yards of remaining capacity. The maximum permitted throughput of the landfill is 400 tons per day (CalRecycle, 2017a). The closest recycling and transfer station is the Fallbrook Recycling and Transfer station, located 4.8 miles to the northwest. The maximum permitted throughout is 500 tons per day, and its permitted capacity is 792 tons per day (CalRecycle, 2017b).

3.15.2 Regulatory Setting

State

Assembly Bill 32 and Senate Bill 1018: Mandatory Commercial Recycling

Mandatory Commercial Recycling was one of the measures adopted in the Assembly Bill 32 Scoping Plan, and focuses on increased commercial waste diversion as a method to reduce greenhouse gas emissions. To help achieve this measure, Senate Bill 1018 was passed in 2012 and requires businesses (including public entities such as schools) that generate four or more cubic yards of commercial solid waste per week must arrange for recycling services. Businesses can either self-haul, subscribe to a hauler, or arrange for the pickup of recycling materials (CalRecycle, 2017c).

Local

San Diego County Regional Water Quality Control Board Municipal Separate Storm Sewer Permit

The MS4 Permit requires implementation of low impact development features for all projects meeting the qualifications of a priority development project. One of the qualifications is a development project creating 10,000 square feet or more of impervious surfaces. The proposed project qualifies as a priority development project Each priority development project must:

1. Implement onsite structural BMPs to control pollutants in stormwater (these include LID BMPS designed to retain onsite the pollutants contained in stormwater runoff produced from a 24-hour 85th percentile storm event); and
2. Implement hydromodification management BMPs (post-project runoff conditions must not exceed pre-development runoff conditions by more than 10 percent) (SDRWQCB, 2015).

The MS4 Permit also requires the phased development and implementation of water quality improvement plans (WQIPs) for the region's watersheds (LWA and Amec, 2015).

San Diego County Construction and Demolition Debris Recycling Ordinance

The San Diego County Construction and Demolition Debris Recycling Ordinance mandates that all construction projects 40,000 square feet or greater in the County must recycle 90% of inert waste (or waste that is not chemically or biologically reactive and will not decompose) as well as 70% of all other construction and demolition debris. In order to obtain building permit approval from the County, project applicants must submit a Debris Management Plan that identifies what will be recycled during construction. A Daily Log of recycling activity must also be maintained onsite during construction that is subject to inspection. Project applicants are eligible for a refund per submittal of a final debris management plan dependent on how much material was actually recycled (SDDPW, 2017a).

San Diego County Solid Waste Planning and Recycling Section

To assist with the State's mandatory commercial recycling requirements, the County's Solid Waste Planning and Recycling Section promotes recycling at schools in unincorporated County areas and helps strengthen school recycling programs through on-site technical assistance (SDDPW, 2017b).

San Diego County General Plan

The Conservation and Open Space Element (Chapter 5) of the San Diego County General Plan includes various goals and policies pertaining to the conservation, management and utilization of natural and cultural resources. The General Plan goals and policies below are specific to utilities and service systems (San Diego County, 2011a).

Goal GOS-4: Water Management. A balanced and regionally integrated water management approach to achieve the long-term viability of the County's water quality and supply.

Policy COS-4.1: Water Conservation. Require development to reduce the waste of potable water through use of efficient technologies and conservation efforts that minimize the County's dependence on imported water and conserve groundwater resources.

Policy COS-4.2: Drought-Efficient Landscaping. Require efficient irrigation systems and in new development encourage the use of native plant species and non-invasive drought tolerant/low water use plants in landscaping.

Policy COS-4.3: Stormwater Filtration. Maximize stormwater filtration and/or infiltration in areas that are not subject to high groundwater by maximizing the natural drainage patterns and the retention of natural vegetation and other pervious surfaces. This policy shall not apply in areas with high groundwater, where raising the water table could cause septic system failures, moisture damage to building slabs, and/or other problems

Goal COS-17: Sustainable Solid Waste Management. Perform solid waste management in a manner that protects natural resources from pollutants while providing sufficient, long term capacity through vigorous reduction, reuse, recycling, and composting programs.

Policy COS-17.1: Reduction of Solid Waste Materials. Reduce greenhouse gas emissions and future landfill capacity needs through reduction, reuse, or recycling of all types of solid waste that is generated. Divert solid waste from landfills in compliance with State law.

Policy COS-17.2: Construction and Demolition Waste. Require recycling, reduction and reuse of construction and demolition debris.

Policy COS-17.6: Recycling Containers. Require that all new land development projects include space for recycling containers.

Fallbrook Community Plan

The Fallbrook Community Plan was designed by the County to address issues, characteristics and visions specific to the community of Fallbrook. The Plan is a tool for identifying the existing conditions and development that positively contribute to Fallbrook's character, as well as the location, scale, and design of desired new land uses, and community facilities, to ensure that new development "fits" with the community and enhances the community's vision (San Diego County, 2011b).

Goal LU 5.1: Adequate and equitable financed public services and facilities to meet the demands of a growing population.

Policy LU 5.1.1: Encourage the continued upgrading of utilities and services to provide an optimum level of service through the coordination of, and cooperation between, community services, public utility companies, and County agencies.

3.15.3 Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, the proposed project could have a potentially significant impact with respect to Utilities if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (see Impact 3.15-1, below);
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects (see Impact 3.15-2, below);
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects (see Impact 3.15-3, below);
- Require new or expanded water supply resources or entitlements (see Impact 3.15-4, below);
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the provider's existing commitments (see Impact 3.15-5, below);
- Be served by a landfill with sufficient permitted capacity to accommodate the project solid waste disposal needs (see Impact 3.15-6, below); or
- Comply with federal, state, and local statutes and regulations related to solid waste (see Impact 3.15-7, below).

3.15.4 Methodology

The project details were compared with the above-discussed information in the Environmental Setting and Regulatory Setting sections. For each of the impact thresholds described in the

Thresholds of Significance Chapter, conclusions were reached as to whether the proposed project would result in a significant impact in relation to that threshold.

3.15.5 Impact Analysis

Wastewater Treatment Requirements

Impact 3.15-1: The project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

During proposed project construction, wastewater would be generated by construction workers through the use of portable toilet facilities. Per County requirements, portable toilet wastes would be collected and discharged by a trucker with a County-issued Sewage Hauler Permit, which requires County review of the trucker's business and planned waste disposal stations. Therefore, portable toilet wastewater would be collected and disposed by a County-permitted sewage hauler at a County-approved location for appropriate treatment.

During operation, the proposed project would use new sewer lines installed onsite that would connect with the existing RMWD wastewater mains located at the intersection of the proposed driveway and Gird Road. Therefore, wastewater generated during operation would be conveyed by RMWD infrastructure to the City of Oceanside's SLRWRP for treatment. Impacts related to the exceedance of wastewater treatment requirements would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Water or Wastewater Treatment Facilities

Impact 3.15-2: The project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

RMWD has indicated that the district has adequate wastewater facilities, including collection and treatment capacity to accommodate the proposed project. Please refer to the wastewater will serve information contained in **Appendix R.** The project will connect to an existing 8" sewer line located in Gird Road at the project driveway.

Wastewater generated by construction worker portable toilet use is expected to be minimal. During operation, the proposed project would introduce a new wastewater demand to the project area; wastewater would be conveyed by RMWD sewer lines to the City of Oceanside's SLRWRP. The SLRWRP is currently using just over a third of its overall treatment capacity (0.54 mgd of 1.5 mgd). Therefore, wastewater generated by the proposed project is not expected to require new or an expansion of existing wastewater treatment facilities. Impacts related to

construction of new or expansion of existing wastewater treatment facilities would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Stormwater Drainage Facilities

Impact 3.15-3: The project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

The project would involve the construction of new stormwater drainage facilities on the project site, including catch basins, a vegetated cobble swale, a new storm drain line and biofiltration basins. These stormwater drainage features were designed to control anticipated stormwater runoff onsite, and expansion of existing stormwater drainage facilities is not required. Since the proposed stormwater drainage facilities are part of the site design, the environmental effects of their construction have been included in the analysis of this Draft EIR. Therefore, impacts related to the construction of new stormwater drainage facilities or expansion of existing facilities would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Water Supplies

Impact 3.15-4: The project would not require new or expanded water supply resources or entitlements.

Project construction is expected to require minimal water supply for dust suppression. During operation, the proposed project is expected to require approximately 35 AF/YR. RMWD provided a will-serve letter for the proposed project that states RMWD facilities to serve the project are expected to be available within the next 5 years based on RMWD capital facility plans. This indicates RMWD would have sufficient water supply to satisfy the proposed project's construction and operation demand. Therefore, the proposed project would not require new or expanded water supply resources or entitlements; related impacts would be less than significant.

RMWD has indicated that the district has adequate water supply and facilities, including an onsite 4-inch water meter to accommodate the proposed project. Please refer to the water will serve information contained in **Appendix R**. The project will connect to an existing 4" water line located in Gird Road at the project driveway.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Inadequate Capacity

Impact 3.15-5: The project would not result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the projects projected demand in addition to the provider's existing commitments.

As described in Impact 3.15-2, wastewater generated during construction is expected to be minimal. The proposed project would introduce a new wastewater demand to the project area that would be treated by the City of Oceanside's SLRWRP, which has an estimated remaining capacity of approximately 1.46 mgd outside of its current treatment demands. Therefore, the project's wastewater treatment provider is expected to have adequate capacity to serve the project's wastewater demand; impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Landfill Capacity

Impact 3.15-6: The project would be served by a landfill with sufficient permitted capacity to accommodate the project solid waste disposal needs.

During project construction, the project would be required to recycle to the maximum extent practicable in accordance with the County Construction and Demolition Debris Recycling Ordinance. This involves recycling 90% of inert waste and 70% of all other construction debris, and specifying what would be recycled in a Debris Management Plan. Qualifying as a commercial facility generating more than 4 cubic yards of solid waste per week, the proposed project would comply with the State's Mandatory Recycling requirements by implementing recycling onsite. Recycled materials would be accommodated by the nearby Fallbrook Recycling and Transfer station. Therefore, project construction and operation would include measures to reduce the amount of waste generated onsite that would require landfill disposal. Solid waste generated by the project that cannot be recycled would likely be disposed of at the Las Pulgas Landfill, which has a maximum throughput of 400 tons per day and had a remaining capacity of approximately 9.5 million cubic yards in 2016. With implementation of recycling requirements and use of the nearby landfill with substantial remaining capacity, waste generated by the proposed project is not expected to exceed the landfill's maximum throughput and would be minimal in comparison to the landfill's remaining capacity. Impacts associated with insufficient permitted landfill capacity would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

Solid Waste Regulations

Impact 3.15-7: The project would comply with federal, state and local statutes and regulations related to solid waste.

During construction and operation, the proposed project would be required to comply with all applicable federal, state and local statutes and regulations. As described under Impact 3.15-6, the project would comply with County Construction and Demolition Debris Recycling Ordinance by recycling to 90% of inert waste and 70% of all construction debris and completing a Debris Management Plan. Further, since it would be a commercial facility that would generate more than 4 cubic yards of solid waste per week, the proposed project would comply with the State's Mandatory Recycling requirements by implementing recycling onsite. Therefore, impacts related to solid waste regulation compliance would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance Determination: Less than Significant

3.15.6 Cumulative Impact Analysis

Wastewater Treatment Requirements

Similar to the proposed project, other development projects in the area would generate wastewater through the use of portable toilet facilities during construction. All portable toilet waste must be collected and discharged by a trucker with a County-issued Sewage Hauler Permit, thereby ensuring proper wastewater collection and disposal. Given the existing sewer lines present throughout the project area, it is anticipated that the majority of new development requiring wastewater treatment would to connect with existing sewer lines. All sewage collected by RMWD sewer lines would convey wastewater for treatment at the SLRRWP. Therefore, the project's impacts related to wastewater treatment requirements would not be cumulatively considerable.

Water or Wastewater Treatment Facilities

Wastewater generated by construction of cumulative projects in the area is expected to generate additional wastewater to be treated at the SLRRWP. Similar to the proposed project, other projects could require dewatering of groundwater during construction that may require treatment per compliance with SDRWQCB Conditional Waiver No. 2; however, portable treatment apparatuses would be used for these purposes and new water treatment facilities would not be constructed. Development projects including the proposed project could pollute stormwater runoff and thus require treatment of runoff; however, all projects qualifying as priority

development projects by the County MS4 Permit would be required to implement structural BMPs onsite to treat stormwater for pollutants. Since these BMPs are typically incorporated into individual project site design, water treatment facilities beyond BMPs required by County MS4 requirements are not anticipated. The City of Oceanside's SLRWRP is expected to sufficiently accommodate wastewater generated by operation of new projects in the area due to its large remaining capacity. Therefore, no water or wastewater treatment facility expansion would be required and impacts would be less than significant.

Stormwater Drainage Facilities

The majority of development projects would be required to construct stormwater drainage facilities of some sort onsite. All projects qualifying as priority development projects would be required to incorporate BMPs onsite designed to retain and treat stormwater. By sufficiently controlling stormwater drainage on individual project sites per MS4 Permit requirements, the expansion of stormwater drainage facilities in the project area would not likely be required. Should new or expanded stormwater drainage facilities be required, their construction would be compliant with all applicable environmental regulations and analyzed for environmental effects as part of the development projects themselves; however, environmental effects from stormwater drainage facility construction and operation tend to be minimal compared with the environmental effects of building construction and operation. Therefore, impacts related to the construction or expansion of stormwater drainage facilities would not be cumulatively considerable.

Water Supplies

RMWD issued a will-serve letter stating RMWD facilities to serve the proposed project are reasonably expected to be available within the next 5 years according to RMWD capital facility plans, which indicates that RMWD would be able to satisfy the proposed project's construction and operational water demand. Therefore, the proposed project would not require expanded water supply resources or entitlements. The majority of other projects in the area would also be served by RMWD**.** RMWD's projected water demand totals are based on anticipated development within the RMWD service area. Development associated with the proposed project and other projects in the area is expected to be encompassed in these demand totals. Projected supplies are expected to match these projected demand totals; therefore, it is not anticipated that the proposed project in combination with other projects in the area would require new or expanded water supply resources or entitlements. Therefore, the proposed project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with potable water supply, and the project's cumulative impact would be less than significant.

Inadequate Capacity

As described in Impact 3.15-2, wastewater generated during construction of projects in the project area would likely be minimal and mainly associated with portable toilet facilities. Wastewater generated by operation of projects in the project area would be treated by the City of Oceanside's SLRWRP, which has an estimated remaining capacity of approximately 1.46 mgd. Therefore, the wastewater treatment provider is expected to have adequate capacity to serve wastewater demand of the project in addition to other projects; impacts would not be cumulatively considerable.

Landfill Capacity

All construction and demolition projects including the proposed project would be required to comply with the County Construction and Demolition Debris Recycling Ordinance. This involves recycling 90% of inert waste and 70% of all other construction debris, and specifying what would be recycled in a Debris Management Plan. Therefore, waste associated with construction and demolition projects in the area would be reduced. Along with the proposed project, all commercial developments that would generate at least 4 cubic yards of solid waste weekly would be required to implement a recycling program onsite per the State Mandatory Recycling Requirements. The Las Pulgas Landfill would serve projects in the area and has substantial remaining capacity of 9.5 million cubic yards. All past, present, and foreseeable future projects have been and would be required to demonstrate that adequate landfill capacity is available to accommodate increased waste prior to any project approvals. Therefore, the proposed project, in conjunction with other development, would not have a significant cumulative impact associated with solid waste, and the Project's cumulative impact would be less than significant.

Solid Waste Regulations

The proposed project and all other projects in the area would be required to comply with all applicable federal, state and local statutes and regulations. As described under Impact 3.15-6, all construction and demolition projects including the proposed project would be required to comply with the County Construction and Demolition Debris Recycling Ordinance by completing a Debris Management Plan and recycling 90% of inert waste and 70% of all construction debris. Along with the proposed project, all commercial developments that would generate at least 4 cubic yards of solid waste weekly would be required to implement a recycling program onsite per the State Mandatory Recycling Requirements. Therefore, impacts related to solid waste regulation compliance would not be cumulatively considerable.

3.15.7 References

California Department of Resources Recycling and Recovery (CalRecycle), 2017a. Facility/Site Summary Details: Las Pulgas Landfill (37-AA-0903). Available at: http://www.calrecycle.ca.gov/SWFacilities/Directory/37-AA-0903/Detail/, accessed November 2017.

CalRecycle, "Mandatory Commercial Recycling," 2017. Available at: http://www.calrecycle.ca.gov/recycle/commercial/, accessed November 2017.

CalRecycle, 2017b. Fallbrook Recycling and Transfer (37-AA-0923) Available at: http://www.calrecycle.ca.gov/SWFacilities/Directory/37-AA-0923/Detail/, accessed November 2017.

RMWD, 2015. 2015 Urban Water Management Plan. Available at: https://www.rainbowmwd.com/files/3182e1d20/Rainbow+Final+UWMP+07012016.pdf, accessed November 2017.

RMWD, 2017. About Our Water. Available at: https://www.rainbowmwd.com/about-our-water, accessed October 27, 2017.

RMWD, 2017. Service Area Map. Available at: https://rainbowmwd.maps.arcgis.com/home/webmap/templates/OnePane/basicviewer/embed.html?webmap=f8a91a7d014e41ad9097accf75bbf289&gcsextent=-117.2892,33.2004,-116.9507,33.468&displayslider=true&displaysearch=true, accessed October 2, 2017.

San Diego County Water Authority (SDCWA), 2016. 2015 Urban Water Management Plan. Available at: http://www.sdcwa.org/sites/default/files/UWMP2015.pdf, accessed November 2017.

San Diego County, 2011a. County of San Diego General Plan, Chapter 5 Conservation and Open Space Element. Available at: http://www.sandiegocounty.gov/content/dam/sdc/pds/gpupdate/docs/GP/ConservationandOpenSpace.pdf, accessed November 2017.

San Diego County, 2011b. County of San Diego General Plan, Fallbrook Community Plan. Available at: http://www.sandiegocounty.gov/pds/docs/CP/Fallbrook_CP.pdf, accessed November 2017.

San Diego County, 2017. Application for Sewage Hauler Permit. Available at: http://www.sandiegocounty.gov/content/dam/sdc/deh/lwqd/sewage_hauler_permit_%20app.pdf, accessed November 2017.

San Diego County, 2017. *Project Facility Availability- Water*. October 10, 2017.

San Diego Department of Public Works, 2017. Recycling at School. Available at: http://www.sandiegocounty.gov/content/sdc/dpw/recycling/schoolrecycling.html, accessed on October 2, 2017.

SDDPW, 2017. Construction and Demolition Recycling Home. Available at: http://www.sandiegocounty.gov/dpw/recycling/cdhome.html, accessed October 2, 2017.

CHAPTER 4
Other CEQA Considerations

This chapter presents the evaluation of other types of environmental impacts require by CEQA that are not covered within the other chapters of this Draft EIR. The other CEQA considerations include environmental effects that were found not to be significant, significant irreversible environmental changes that would be caused by the project, growth-inducing impacts, and significant and unavoidable adverse impacts.

4.1 Effects Found not to be Significant

The Bonsall Unified School District, through the scoping process, determined the proposed project has the potential to cause or result in significant environmental impacts, and warranted further analysis, public review, and disclosure through the preparation of an EIR. The Notice of Preparation (NOP), dated May 25, 2017, was forwarded to the California Office of Planning and Research, State Clearinghouse (SCH), and circulated for public review and comment. The State Clearinghouse established the public comment period for the NOP as May 26, 2017 through June 26, 2017. The assigned State Clearinghouse reference for the project is SCH No. 2017051078. The NOP and NOP responses are presented in Appendix A of this Draft EIR.

The following discussion summarizes the environmental impacts in the NOP and public review process that do not pose potentially significant impacts. Specific issues considered to not pose potentially significant impacts were not substantively discussed within the body of this Draft EIR.

4.1.1 Aesthetics

Scenic Vistas

Threshold: Would the project have a substantial adverse effect on a scenic vista?

Certain areas in the County have been designated as Resource Conservation Areas (RCAs) for the purposes of informing future planning decisions. RCAs include, but are not limited to, areas of aesthetic quality, groundwater problem areas, coastal wetlands, native wildlife habitats, construction quality sand areas, littoral sand areas, astronomical dark skies areas, scenic geologic formations, and significant archaeological and historical sites. The Lancaster Mountain is an area within the Fallbrook Community Planning Area that is valued as a visual resource and also includes areas of oak woodland, mixed chaparral habitat, and steep rocky slopes.

The project site is not located within a scenic vista. Lancaster Mountain is located approximately 2 miles southwest of the project site. The project would not result in the removal or substantial adverse change to the Lancaster Mountain area, and the project would not obstruct, interrupt, or detract from the scenic vista that is visible from a public road, trail, scenic highway, or recreational area. The views of the Lancaster Mountain area from the adjacent golf course would not be significantly reduced or completely obstructed by the project development. The project would not have a substantial adverse effect on a scenic vista. Impacts would be less than significant.

Scenic Resources within a State Scenic Highway

Threshold: Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

State Scenic Highways are those highways that are either officially designated by Caltrans or are eligible for designation. This statewide system of scenic highways is part of the Master Plan of State Highways Eligible for Official State Designation as Scenic Highways. A highway may be designated as "scenic" depending upon how much of the natural landscape can be seen by travelers, the aesthetic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

Two routes in the planning area have been designated State Scenic Highways; these include: (1) State Route (SR) 78 through the Anza-Borrego Desert State Park (18.2-mile segment) and (2) SR-125 from SR-94 in Spring Valley to Interstate-8 (I-8) in La Mesa. Sunrise Highway (S1) is a National Scenic Byway that runs north from Old Highway 80 to SR-79 through the Cleveland National Forest. These highways are not located within the project area.

SR-76 from Oceanside City limits to I-15 is listed as a part of the County Scenic Highway System. Gird Road from SR-76 north and east to I-15 is listed as part of the County Scenic Highway System. Gird Road is adjacent to the project site.

The proposed project would retain the native oak tree stands and the environmentally sensitive areas around the perimeter and within the project boundaries. Further, the school buildings would be built internal to the site and would not be situated adjacent to the project boundary and Gird Road. Further, the project would not permanently alter the alignment of Gird Road. While the project site's character would be altered, the project would not substantially damage scenic resources along Gird Road. The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. Impacts would be less than significant.

4.1.2 Agricultural Resources

Zoning or Rezoning of Forest Land or Timberland

Threshold: Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

Public Resources Code Section 12220(g) identifies forest land as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The project site and surrounding properties are not currently being managed or used for forest land as identified in Public Resources Code Section 12220(g). Additionally, the project site is not zoned for timberland production. Therefore, the project would not conflict with existing zoning for, or cause the rezoning of, forest land or timberland. No impact would occur.

Loss or Conversion of Forest Land

Threshold: Would the project result in the loss of forest land or conversion of forest land to non-forest use?

The project site is currently vacant and is not being use as or preserved for forest land. Therefore, development of the proposed project would not result in the loss of forest land or the conversion of forest land to non-forest use.

4.1.3 Geology and Soils

Alquist-Priolo Earthquake Fault Zone

Threshold: Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to protect structures for human occupancy from the hazard of surface faulting. In accordance with the act, the State Geologist has established regulatory zones—called earthquake fault zones—around the surface traces of active faults, and has published maps showing these zones. Buildings for human occupancy may not be constructed across surface traces of faults that are determined to be active. According to the Preliminary Geotechnical Engineering and Geologic Hazard Report prepared by Leighton Consulting, Inc., the site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone (Leighton Consulting Inc., 2016). Therefore, no impact would occur.

Landslides

Threshold: Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

A landslide is when a mass of earth or rock slides down a sloped hill, mountain, or cliff. According to the Preliminary Geotechnical Engineering and Geologic Hazard Report prepared by Leighton Consulting, the risk of deep-seated slope failure is considered low due to the dense granular nature of the site soils and moderate relief across the site (Leighton Consulting Inc., 2016). The site is therefore not susceptible to seismically induced landslides. No impact would occur.

Wastewater Disposal Systems

Threshold: Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewer are not available for the disposal of waste water?

An existing 12-inch gravity sewer line is located beneath Gird Road. A new sewer line would be installed to connect the project site to the existing sewer line beneath Gird Road, connecting the project to the existing municipal sewer system. Therefore, the project would not require the use of septic tanks. No impact would occur.

4.1.4 Hazards and Hazardous Materials

Routine Use

Threshold: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

The project site has been reviewed and approve for public school use by the State of California Department of Toxic Substances Control (DTSC) on August 1, 2016. Project construction activities would involve transport, use, and disposal of hazardous materials such as solvents, oils, grease, and cleaning fluids. In addition, hazardous materials may be needed for fueling and servicing construction equipment on the project site. The use of these materials during project construction would be short-term in nature, and would occur in accordance with standard construction practices. All transport, handling, use, and disposal of substances such as petroleum products related to construction would comply with all federal, State, and local laws regulating the management and use of hazardous materials. These laws include but are not limited to: the Resource Conservation and Recovery Act (RCRA), and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Construction activities that involve hazardous materials would be governed by several agencies, including the California Environmental Protection Agency (CalEPA), California Division of Occupational Safety and

Health (Cal/OSHA), Department of Toxic Substances Control (DTSC), and the North County Fire Protection District. Best management practices would be in place to ensure the lawful and proper storage and use of these materials and as such, potential impact would be would be less than significant.

Operation

Once the high school is operational, hazardous materials that might be handled, used, transported, or disposed of include standard cleaning products, pesticides, herbicides, paints, fuels, and lubricants used in association with standard campus janitorial, maintenance, and landscaping. In addition, certain curricula, such as chemistry and arts (wood, metal, electronics, and auto shops), could involve the use of small quantities of chemicals, fuels and other petroleum products, solvents, and paints. Small volumes of hazardous wastes, such as waste paint, batteries, fluorescent lamps, mercury-containing equipment, or unused maintenance products would be generated to maintain the new school facilities, which would require management in accordance with federal, State, and standard District regulations, policies and practices. Most hazardous materials stored on school campuses present little risk of upset, since they are generally stored in small containers in designated areas. The amounts of hazardous materials that are handled at any one time would be minimal, not industrial, reducing the potential consequences of an accident during transport, storage, or handling. Therefore, potential impacts resulting from the transport, use, and/or disposal of hazardous materials during the construction or operational phase of the project would be less than significant.

Accident Conditions

Threshold: Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Construction

As discussed above, limited quantities of hazardous materials such as gasoline, diesel, oils, and lubricants may be required to operate the construction equipment. Construction activities would be short-term, and the use of these materials would cease once construction is complete. The hazardous substances used during construction would be required to comply with existing federal, state and local regulations regarding the use and disposal of these materials. In the event of an accidental release during construction, containment and clean up would be in accordance with existing applicable regulatory requirements.

Operation

As described above, project operations would require the use of small quantities of hazardous materials. All materials would be used in compliance with all applicable federal, state and local regulations, including standard District policies and practices regarding the use and transport of hazardous materials. In the event of an accidental release, containment and clean up would be in accordance with existing applicable regulatory requirements.

A Phase I ESA prepared for the project site, located in **Appendix N** of this Draft EIR, states that no building structures were observed at the project site during site reconnaissance (Padre Associates Inc., 2016). No discarded petroleum and/or chemical containers were observed on the grounds of the project site. No petroleum and/or chemical stained soils were observed. No aboveground or underground petroleum fuel tanks were identified at the project site. No chemical waste disposal, landfills, and/or burn pits were observed at the project site.

The environmental agency database information obtained from Environmental Data Resources, Inc. (EDR) did not identify any environmental violations and/or documented environmental incidents associated with the project site and/or properties located within the required search distances that may be anticipated to present an environmental concern to the project site. The Phase I ESA recommends a "No Further Action" designation due to no environmental concerns at the project site.

Potential impacts to the public or the environment related to reasonably foreseeable accident conditions related to hazardous materials would be less than significant.

Schools

Threshold: Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The project site is not located within ¼-mile of an existing school.

As described above, operation of the new high school would require the use of small quantities of hazardous materials. All materials would be used in compliance with all applicable federal, state and local regulations, including standard District policies and practices regarding the use and transport of hazardous materials. In the event of an accidental release, containment and clean up would be in accordance with existing applicable regulatory requirements.

The San Diego Air Pollution Control District (SDAPCD) identified one facility registered with an emissions permit within a ¼-mile radius. The Gulf Blub of California's maintenance facility is located south of the proposed school site. The facility operates a 2,235-gallon aboveground fuel storage tank (AST), which is permitted. This AST does not emit reportable quantities of hazardous air emissions. Further, there are no open violation reports related to the AST. Thus, the project's proximity to the AST would not result in significant impacts related to hazardous emissions. Impacts would be less than significant.

Hazardous Materials Site Listing

Threshold: Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Pursuant to Government Code 65962.5, environmental regulatory database lists were reviewed to identify and locate properties with known hazardous substance contamination within the proposed project area (California Government Code, Section 65960 et seq.). A review of the Department of Toxic Substances Control's (DTSC) Hazardous Waste and Substances List – Site Cleanup (Cortese List) indicates that identified hazardous material sites are not located within the project area (DTSC, 2007). A review of the DTSC EnviroStor and the State Water Resources Control Board GeoTracker online databases did not indicate any open cleanup sites or hazardous waste facilities within the vicinity of the project area. Therefore, since the project is not located on a list associated with hazardous materials, no impacts would occur.

Airports

Threshold: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

The nearest public airport is the Fallbrook Airpark, located approximately 3.5 miles to the northwest of the proposed project. The project area is not located within an airport land use plan area or within two miles of a public airport or public use airport. Therefore, the proposed project would not expose people to a safety hazard.

Private Airstrips

Threshold: For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The project area is not located within an airport land use plan or within two miles of a public or private airport, airstrip, heliport, or helistop. Therefore, the project would not result in an airport-related safety hazard for people residing or working in the project area. No impact would occur.

Emergency Plans

Threshold: Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The proposed project would not interfere with any adopted emergency response or evacuation plan. The County's Multi-Jurisdictional Hazard Mitigation Plan and the Fallbrook/Bonsall/ De Luz/Rainbow Community Protection and Evacuation Plan (CPEP) are emergency response and evacuation plans for the project area. Gird Road is considered a main evacuation route (Fallbrook Community, 2006)

All construction equipment would be stored in active grading areas and/or the proposed staging area. The project includes connections to water lines within Gird Road adjacent to the project site. The open trenching to install new pipeline connections would require temporary closure of one or

all lanes, which would cause congestion on the remaining open lanes, potentially causing traffic safety hazards. After obtaining an encroachment, excavation, and/or construction permit from the County, a traffic control permit is necessary for any work on a County-maintained roadway or in the County right-of-way. The District would prepare and implement a Traffic Control Plan (TCP) for County approval. The TCP would provide the motorists safe passage through the construction zone, as well as to safeguard construction workers by identifying hours of construction, discussion of haul routes, limits on the length of open trench, work area delineation, traffic control and flagging, pedestrian restrictions, and process for communication with surrounding uses. Therefore, the County-approved TCP would reduce the short-term effects of construction activities on traffic flow and emergency response. Impacts would be less than significant.

Once constructed, the project does not propose any changes to the County's Multi-Jurisdictional Hazard Mitigation Plan or the Fallbrook/Bonsall/ De Luz/Rainbow CPEP. The proposed project driveway would be constructed in conformance with County of San Diego Public Works and North County Fire Protection District standards, including provisions for sight distance requirements. The access driveway would be designed to split lanes to allow for adequate onsite queuing and emergency access, with both lanes being used if needed for either ingress or egress. All applicable local and state regulatory standards for adequate emergency access would be met. Therefore, the project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Project impacts related to emergency access would be less than significant.

Wildland Fires

Threshold: Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

According to the California Department of Forestry and Fire Protection's Fire Hazard Severity Zone (FHSZ) maps, the proposed project is located within a Very High FHSZ (Ready San Diego, 2017). The project site is located in a rural residential/agricultural environment, and residential neighborhoods are located immediately to the north. There are open spaces located east of the project site, which increases the risk of wildland fire damage to people and structures in the area.

The project would adhere to County Building and Fire Code Requirements for construction and development within a wildland-urban interface area. These requirements include fuel modifications requirements, setbacks, building construction requirements (e.g, walls, windows, doors, roofs, insulation), and fire sprinkler requirements. These measures are designed to protect occupants and structures from fires. Adherence to existing state and local fire building codes would ensure that fire safety construction measures are implemented during construction of the proposed project that are within Very High FHSZs. The proposed project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Therefore, impact would be less than significant.

4.1.5 Mineral Resources

Loss of Known Mineral Resources

Threshold: Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The project site is located in the Community of Fallbrook within San Diego County. According to the County of San Diego General Plan, the project site is located in a Mineral Resource Zone (MRZ) 3. MRZ 3 are areas that may contain mineral deposits that could qualify as mineral resources. Further, exploration work within these areas could result in the reclassification of specific localities into the MRZ-2 category. Most of the remaining land in the Western San Diego P-C Region is classified as MRZ-3, with exception of a few small areas that are MRZ-4.

The project site is currently zoned as Limited Agriculture and regionally significant mineral resources are not known to occur within the project site. The project site does not have a history of mineral extraction uses (Padre Associates, Inc., 2016). Further, according to the State of California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, no oil well exists on the project site (Padre Associates, Inc., 2016). Therefore, the proposed project would not prevent the future availability of a known regionally-significant mineral resource to be obtained in within the immediate area. No impact would occur.

Loss of Mineral Resource Recovery Site

Threshold: Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Based on the review of the County of San Diego General Plan and Fallbrook Community Plan, the project site is not located within mineral resources recovery sites that contain locally important minerals. Therefore, the proposed upgrades would have no impacts related to the loss of locally important mineral resources.

4.1.6 Noise

Public Airport Noise

Threshold: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The nearest public airport is the Fallbrook Airpark, located approximately 3.5 miles to the northwest of the proposed project. The project area is not located within an airport land use plan area or within two miles of a public airport or public use airport. Therefore, the proposed project would not expose people to excessive airport related noise levels.

Private Airstrip Noise

Threshold: For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The project area is not located within an airport land use plan or within two miles of a public or private airport, airstrip, heliport, or helistop. Therefore, the project would not result in an airport-related safety hazard for people residing or working in the project area. No impact would occur.

4.1.7 Population and Housing

Population Growth

Threshold: Would the project induce substantial growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed high school would not directly induce population growth in the area because the project is proposed to accommodate the need for additional high school capacity within the Bonsall Unified School District service area. SANDAG's 2050 Regional Growth Forecast projects an increase in 54,813 jobs by the year 2050 from 2008 levels. Although the proposed project would create approximately 60 jobs for teaching, administration, and support staff, the number of jobs created would be nominal compared to the projected increase of 54,813 jobs by the year 2050 for unincorporated San Diego County (SANDAG, 2013). Based on 2010-2014 American Community Survey (ACS) data, the total housing in Fallbrook is 10,991 units and 605 vacant housing units (U.S. Census Bureau, 2010-2014). It is assumed the new employees from the area would be accommodated by existing housing. Therefore, the project would not require new housing. The project site is within a developed area served by existing infrastructure (e.g., water lines, sewer, gas) and a regional roadway network. Therefore. development of the proposed project would not indirectly result in increases in population due to providing new extensions of infrastructure. Therefore, substantial population growth as a result of the proposed project would not occur. No impact would occur.

Housing Displacement

Threshold: Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

The project site is currently vacant and does not contain any residential units. Therefore, the development of the proposed project could not result in the displace of existing housing that would necessitate the construction of replacement housing elsewhere. No impact would occur.

Population Displacement

Threshold: Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The project site is currently vacant and does not contain any residential units or unauthorized people residing on the site. Therefore, the development of the proposed project could not result in the displace of people that would necessitate the construction of replacement housing elsewhere. No impact would occur.

4.1.8 Public Services

Parks

Threshold: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for parks?

The proposed high school would not result in direct population growth that would incrementally impact recreation facilities. The project is proposed to accommodate the need for additional high school capacity within the Bonsall Unified School District service area. Because the project is proposed on a site within an existing residential area that currently has access to public parks and would serve the existing population, development of the proposed project would not indirectly result in increases in population to the point where the need for new or physically altered recreation facilities would be required. Therefore, no substantial increases in demand for park and recreation facilities would occur. No impact would occur.

Other Public Facilities

Threshold: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, need for new or physically altered library facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for libraries?

The San Diego County Library serves the community of San Diego County and operates 33 branches, 2 bookmobiles, and 2 24/7 Library To Go kiosks.[1] In addition, the County provides numerous materials on the eLibrary system and runs a books-by-mail service. The County of San Diego currently operates the Fallbrook Branch Library located at 124 South Mission Road in Fallbrook and a 24/7 Library to Go self-service kiosk located at the Bonsall Community Center (31505 Old River Road, Bonsall). The proposed project would not result in substantial increases in employees of residents that would generate additional demand for public facilities such as

[1] San Diego County Library. About the Library. http://www.sdcl.org/aboutus.html. Accessed August 2017

libraries. The proposed project would serve the existing high school-aged population within the District boundaries who currently have access to existing services provided by the San Diego County Library system. Therefore, no impacts would occur.

4.1.9 Recreation

Deterioration of Existing Facilities

Threshold: Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The project is proposed to accommodate the need for additional high school capacity within the Bonsall Unified School District service area. Because the project is proposed on a site within an existing residential area that currently has access to public parks and would serve the existing population, development of the proposed project would not directly or indirectly result in increases in population to the point where use of existing facilities would increase. Therefore, the proposed project would not increase the use of existing neighborhood and regional parks or recreation facilities such that physical deterioration of the facility would occur or be accelerated. No impact would occur.

Construction or Expansion New or Existing Facilities

Threshold: Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The proposed project includes the construction of physical education facilities such as a soccer field, basketball courts, track and field area, and gymnasium. The environmental effects of these facilities are evaluated as part of the overall project within this Draft EIR and no significant and unavoidable effects have been identified. As discussed above, the proposed project would accommodate the demand for additional high school capacity within the BUSD service area and would not result in direct or indirect population growth in the area. Therefore, development of the proposed project would not require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. No impact would occur.

4.2 Significant Environmental Effects

Table ES-1 (*Summary of Environmental Effects and Mitigation Measures*), which is contained in Chapter ES, *Executive Summary*, and Section 3.1 through Section 3.15 of this Draft EIR provide a comprehensive identification of the project's environmental effects, including the level of significance both before and after mitigation.

4.3 Significant Environmental Effects That Cannot Be Avoided if the Project is Implemented

CEQA Guidelines § 15126.2(b) requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. Development of the project would not result in significant and unavoidable project-related and/or cumulative impacts. Section 3.1 through Section 3.15 of this Draft EIR provide a comprehensive identification of the project's environmental effects, including the level of significance both before and after mitigation.

4.4 Significant Irreversible Changes

Pursuant to CEQA *Guidelines* § 15126.2(c), an EIR must consider any significant irreversible environmental changes that would be caused by the proposed Project should it be implemented. § 15126.2(c) states:

> *Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to ensure that such current consumption is justified.*

Resources that would be permanently and continually consumed by implementation of the proposed project include energy, water, and fossil fuels; however, the amount and rate of consumption of these resources would not result in the unnecessary, inefficient, or wasteful use of resources, as discussed in Section 3.6, *Energy*.

4.5 Growth-Inducing Impacts

The California Environmental Quality Act (CEQA) Guidelines (Section 15126.2(d)) require that an EIR discuss the potential growth-inducing impacts of a proposed project. The CEQA Guidelines provide the following guidance for such discussion:

> *"Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."*

A project can have direct and/or indirect growth-inducement potential. Direct growth inducement would result if a project involved construction of new housing. A project can have indirect growth-inducement potential if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, under CEQA, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. Under CEQA, growth is not considered necessarily detrimental or beneficial.

Based on the CEQA definition above, assessing the growth-inducement potential of the proposed project involves answering the question: "Would implementation of the proposed project directly or indirectly support economic expansion, population growth, or residential construction?" Schools are one of the chief public services needed to support growth and community development. While schools play a role in supporting additional growth, it is not the single determinant of such growth. Other factors, including General Plan policies, land use plans, and zoning, the availability of solid waste disposal capacity, wastewater treatment, transportation services, and other important public infrastructure, also influence business and residential population growth. Economic factors, in particular, greatly affect development rates and locations.

4.5.1 Methodology

This section evaluates how the proposed project could affect population growth in the region. The growth anticipated in the region has been identified in local General Plans prepared by local land use agencies and municipalities. Bonsall USD has no control over land use decisions or future population growth.

Growth inducement itself is not necessarily an adverse impact. It is the potential consequences of growth, the secondary effects of growth, which may result in environmental impacts. Potential secondary effects of growth could include increased demand on other public services; increased traffic and noise; degradation of air quality; loss of plant and animal habitats; and the conversion of agriculture and open space to developed uses. Growth inducement may result in adverse impacts if the growth is not consistent with the land use plans and growth management plans and policies for the area, as "disorderly" growth could indirectly result in additional adverse environmental impacts. Thus, it is important to assess the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans.

To determine direct growth-inducement potential, the proposed project was evaluated to verify whether an increase in population or employment, or the construction of new housing would occur as a direct or indirect result of the proposed project. If either of these scenarios occurred, the proposed project could result in direct growth-inducement within the region.

4.5.2 Growth Inducement Potential

Direct Growth

The proposed project is part of the larger goal of the County to maintain, upgrade, and expand existing facilities to meet current and future demands for educational services throughout the county. Implementation of the proposed project would not have direct growth inducement effects, as it does not propose development of new housing that would attract additional population. As described above in Section 4.1.7, the total housing in Fallbrook is 10,991 units with 605 vacant housing units based on 2010-2014 ACS data, (U.S. Census Bureau, 2010-2014). It is assumed the new 60 employees required for the project would be from the area and would be accommodated by existing housing. Therefore, the project would not require new housing. The project would not extend roads or other infrastructure that could indirectly induce growth. Further implementation of the proposed project would not result in substantial permanent or even short-term construction employment that could indirectly induce population growth by establishing new employment opportunities. The temporary construction employment opportunities are expected to be filled by workers within the local economy, and new housing for construction employees would not be required.

Operation of the new high school is intended to accommodate anticipated growth in the BUSD high school student population and would not result in population growth within the county. While the project is not expected to result in population growth in the area, it would result in an increase in employment of high school staff in the county. However, in its 2050 Regional Growth Forecast, SANDAG identified employment growth in unincorporated areas of the County would increase from 137,264 in 2008 to 192,077 in 2050, an increase of 54,813 jobs (SANDAG, 2013). The project is expected to provide a maximum of 60 jobs (teachers, aides, administrators, and other school personnel) final at build out, which is well within the anticipated increase of 54,813 jobs. As such, this project-related increase in employment is accounted for in the SANDAG growth assumptions for the county. Based on this, the proposed project would not have substantial direct or indirect growth-inducing impacts.

Secondary Effects of Growth

Growth is not in and of itself a significant adverse impact. However, population growth could result in secondary environmental effects that could be significant. The environmental impact analysis conducted for cumulative development within the project vicinity identified significant environmental impacts associated with growth. Secondary effects of growth typically found to be significant and unavoidable include, air quality degradation, hydrology and water quality modification and degradation, traffic congestion, transportation demand increase, increased noise, increased demand on public services, and increased demand on utilities. As analyzed in Sections 3.1 through 3.15, the project would not result in significant and unavoidable project or cumulative impacts to the environment. Further, the project would not substantially lead to an increase in population that would require the need for additional development.

The project would support phased development to accommodate for planned growth rather than developing in excess prior to the need.

The County of San Diego and local cities' General Plans all plan for increased growth. The General Plan EIRs acknowledge that planned development results in adverse secondary effects. Pursuant to CEQA, the County of San Diego and local cities have adopted statements of overriding consideration for the anticipated significant unavoidable effects. The proposed project would not cause additional secondary effects. Regional adverse effects caused by growth are generally mitigated through regional resource management agencies. **Table 4-1** lists some of the agencies with the authority and mandate to mitigate secondary effects of growth.

TABLE 4-1
AGENCIES HAVING AUTHORITY TO IMPLEMENT MITIGATION MEASURES FOR GROWTH-RELATED IMPACTS

Agency	Authority
San Diego County	Responsible for planning, land use, and environmental protection of unincorporated areas. Of particular importance is development of presently undeveloped lands, provision of regional solid waste management facilities, and regional transportation, air quality and flood control improvement programs.
Community of Fallbrook	Responsible for adoption of the *General Plan* and various planning elements and local land use regulations. Adopts and implement local ordinances for control of noise and other environmental concerns. Participates in regional air quality maintenance planning through adoption of local programs to control emissions via transportation improvements. Responsible for enforcing adopted energy efficiency standards in new construction.
Local Agency Formation Commissions	Empowered to approve or disapprove all proposals to incorporate cities, to form special districts or to annex territories to cities or special districts. Also empowered to guide growth of governmental service responsibilities.
San Diego County Council of Governments	Under State and federal law, have authority and responsibility over transportation planning and funding. Allocate transportation infrastructure and housing.
Regional Water Quality Control Board	Share responsibility with SWRCB to coordinate and control water quality. Formulates and adopts water quality control plans. Implements portions of the Clean Water Act when EPA and SWRCB delegate authority, as is the case with issuance of NPDES permits for waste discharge, reclamation, and storm water drainage.
State Department of Health	Responsible for the purity and potability of domestic water supplies for the State. Assists SWRCB and RWQCBs in setting quality standards.
California Air Resources Board	Responsible for adopting and enforcing standards, rules, and regulations for the control of air pollution from mobile sources throughout the State.
San Diego County Air Pollution Control District	Adopt and enforce local regulations governing stationary sources of air pollutants. Issue Authority to Construct Permits and Permits to Operate. Provide compliance inspections of facilities and monitors regional air quality. Developed the Clean Air Plan in compliance with the Clean Air Act.
U.S. Fish and Wildlife Service	Requires consultation under Section 7 or Section 10 of the Endangered Species Act for projects which could potentially impact endangered or threatened species. Prepares biological opinions on the status of species in specific areas and potential effects of proposed projects. Approves mitigation measures to reduce impacts and establishes Habitat Conservation Plans.
U.S. Army Corps of Engineers	Issues permits to place fill in waterways pursuant to Section 404 of the Clean Water Act.
California Department of Fish and Wildlife	Issues Streambed Alteration Agreements for projects potentially impacting waterways.

4.6 References

Fallbrook Community, 2006. *Fallbrook/Bonsall/De Luz/Rainbow Community Protection Evacuation Plan (CPEP).* August 9, 2006.

Leighton Consulting Inc., 2016. *Preliminary Geotechnical Engineering and Geologic Hazard Report Proposed High School – Gird Road Property, APN: 124-340-34-00 Fallbrook Area, San Diego County, California*. April 22, 2016.

Padre Associates, Inc., 2016. *Phase I Environmental Site Assessment and Title V Environmental Hazards Evaluation New School Site West of Gird Road and Live Oak Creek Circle Fallbrook, San Diego County, California*. May 2016.

U.S. Census Bureau, 2014. *American Community Survey 5-Year Estimates, 2010-2014*. 2014.

CHAPTER 5
Alternatives

5.1 Introduction

This section addresses alternatives to the proposed project, describes the rationale for their evaluation in the Draft Environmental Impact Report (EIR), evaluates the potential environmental impacts associated with each alternative, and compares the relative impacts of each alternative to those of the proposed project. In addition, this section analyzes the extent to which each alternative meets the project's objectives identified in Chapter 2, *Project Description*.

The California Environmental Quality Act (CEQA) requires that an EIR consider a reasonable range of feasible alternatives (State CEQA Guidelines, Section 15126.6(a)). According to the State CEQA Guidelines, alternatives should be those that would attain most of the basic project objectives and avoid or substantially lessen one or more significant effects of the project (State CEQA Guidelines, Section 15126.6). The "range of alternatives" is governed by the "rule of reason," which requires the EIR to set forth only those alternatives necessary to permit an informed and reasoned choice by the lead agency and to foster meaningful public participation (State CEQA Guidelines, Section 15126.6(f)).

CEQA also requires the feasibility of alternatives be considered. Section 15126.6(f)(1) states that among the factors that may be taken into account in determining feasibility are: site suitability; economic viability; availability of infrastructure; general plan consistency; other plans and regulatory limitations; jurisdictional boundaries; and (when evaluating alternative project locations) whether the proponent can reasonably acquire, control, or otherwise have access to an alternative site. Furthermore, an EIR need not consider an alternative whose effects could not be reasonably identified, whose implementation is remote or speculative, or that would not achieve the basic project objectives.

The alternatives addressed in this Draft EIR were identified in consideration of the following factors:

- The extent to which the alternative could avoid or substantially lessen the identified significant environmental effects of the proposed project
- The extent to which the alternative could accomplish basic objectives of the proposed project
- The feasibility of the alternative
- The requirement of the State CEQA Guidelines to consider a "no project" alternative

CEQA Guidelines Section 15126.6(e)(1) states that a no project alternative shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline.

5.2 Project Objectives

The following project objectives have been established; they serve as basis for comparing the alternatives, and for the evaluation of associated environmental impacts:

- Construct a public high school campus to accommodate the anticipated growth in the BUSD high student population and relieve overcrowding of high school students over the next 20 years.
- Allow for continued growth in the middle school student population and associated educational facilities at the existing Sullivan Middle School.
- Allow for phased construction of the high school campus in accordance with student population growth projections and available construction funding from local sources as well as the District's eligibility for potential State Bond Funding from Proposition 51 in the approximate amount of $9 Million.
- Minimize required student transportation and staff commuting distances by centrally locating the high school campus within BUSD not more than 1/4 mile from an arterial or collection road.
- Locate the high school campus on a site that is large enough to accommodate anticipated growth in the BUSD high school population and typical high school facilities and programs (25-60 acres) pursuant to the California Department of Education school site selection criteria, proximate to available utilities, outside of a flood plain or flood way, and containing efficient ingress and egress to minimize traffic queuing and maximize first responder access.
- Design and construct the high school to avoid or minimize impacts to sensitive environmental resources and the surrounding community. Minimize impact to the regional circulation system.

5.3 Alternatives Not Further Evaluated in This EIR

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are potentially feasible and, therefore, merit in-depth consideration, and which are clearly infeasible. Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered (CEQA Guidelines, Section 15126.6[f][3]).

An alternative site or location for the project need not be considered when its implementation is "remote and speculative" such as the site being out of the purview of the lead agency or beyond the control of a project applicant. Alternative sites were not selected for evaluation. CEQA Guidelines Section 15126.6(f)(2) specifies that the key question with alternative sites is "whether any of the significant effects of the project would be avoided or substantially lessened by putting

the project at another location." There are no significant effects associated with the proposed project site that would be avoided or substantially lessened by putting the project in another location.

BUSD formed a Superintendent's Advisory Committee (Committee) to conduct an alternative site evaluation to determine if any alternative sites were available within the district boundary that could accommodate a high school campus. The Committee consisted of seven community members and three BUSD staff members. The Committee's Process and Recommendation, which was presented to the BUSD Board of Trustees on January 11, 2018, is contained in Appendix T. With the assistance of a local realtor, the Committee evaluated a total of eight potential alternative sites initially, selecting six for further consideration. The six potential alternative sites were further evaluated for suitability using a site analysis matrix approach to determine if any of them had the potential to reduce significant effects as compared to the proposed project site.

The proposed project site ranked highest on the suitability analysis, ahead of all the evaluated alternative sites. None of the alternative sites were determined to have the ability to avoid or substantially lessen any significant environmental effects beyond the proposed project site's environmental effects, which have been determined to be less than significant.

The development of the project on an alternative site has been eliminated from further consideration and analysis due to the lack of available alternative sites in the District the inability of an alternative site to meet most of the basic objectives of the project, physical constraints and the inability of an alternative site to reduce significant effects beyond the proposed project, which has been determined to have no significant effects. Therefore, the potential for alternative sites is not evaluated further in this Draft EIR.

5.4 Review of Significant Environmental Impacts

Based on the CEQA Guidelines, several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include: (1) the nature of the significant impacts of the proposed project, (2) the ability of alternatives to avoid of lessen the significant impacts associated with the project, (3) the ability of the alternatives to meet the objectives of the project, and (4) the feasibility of the alternatives.

The alternatives examined in this chapter would lessen at least some of the significant agricultural, biological, hydrology and water quality, noise, and traffic impacts associated with implementation of the proposed project, while still meeting the project objectives. Implementation of the proposed project would not result in significant and unavoidable impacts. Impacts would be less than significant with mitigation related to the following environmental topic areas: biological resources, cultural resources, hydrology and water quality, noise, and cumulative traffic.

This chapter includes a discussion of whether each alternative would lessen this impact. As the lead agency, the District will decide whether to proceed with the proposed project or whether to accept or reject any of the alternatives identified in this chapter. As required by the CEQA

Guidelines, if the District ultimately rejects an alternative, the rationale for the rejection will be presented in the findings that are required to be made before the District certifies the EIR and takes action on the project.

5.5 Alternatives Selected for Analysis

The No Project Alternative and two project alternative scenarios, representing a range of reasonable alternatives to the proposed project, were selected for detailed analysis. The goal for evaluating these alternatives is to identify ways to avoid or lessen the significant environmental effects resulting from implementation of the proposed project, while attaining most of the project objectives. The following provides a summary of each of the alternatives analyzed. More detailed descriptions of each of the alternatives is provided in the introductions to Sections 5.6 through 5.8.

- **Alternative 1: No Project/No Build Alternative,** in which no project or project alternative would be adopted. The project site would remain as it is in existing conditions. The site would remain vacant and no high school would be developed.
- **Alternative 2: No Project/Development in Accordance with the General Plan.** The project site is currently served by available water service and can feasibly connect to other available utilities. The project site is served by supporting public services. The project site is accessible by existing regional and local roadways, and areas around the project site are developed with residential, recreational, and commercial uses.

  The project site is located within the Fallbrook Community Plan, and has a Public/Semi-Public Facilities General Plan Land Use designation. The project site is zoned Limited Agricultural (A70). This land use designation is intended to accommodate uses such as institutional uses, academic facilities, governmental complexes, and community service facilities, such as County airports, public schools, correction institutions, solid waste facilities, water facilities, and sewer facilities. A maximum FAR of 0.50 is permitted by this designation.

  Given the project site's Public/Semi-Public Facilities General Plan Land Use designation; availability of infrastructure/services, lack of physical constraints; and accessibility, it is unlikely that the project site would remain vacant or in a "No Build" condition indefinitely. Failure to proceed with the proposed project would likely not result in preservation of existing environmental conditions, and the practical result of the project's non-approval would be the development of another type or configuration of Public/Semi-Public Facilities uses within the project site that are consistent with the general plan land use designations and zoning. If that future development were to occur, the impacts of the no project/reasonably foreseeable development would be identical to or substantially similar to the proposed project.
- **Alternative 3: Phase 1 Only,** in which only Phase 1 of the proposed high school would be developed. Phase 1 includes development of the administration building, food service building, locker rooms, one academic building, gymnasium areas, soccer field, basketball hardcourts, and parking.

Section 5.8 provides a comparative summary of the alternatives, including a summary of the ability of the alternatives to meet the project objectives and a summary comparison of the potential impacts associated with the alternatives and the proposed project.

5.6 Environmental Analysis of Alternative 1 (No Project/No Build)

Under this alternative, the project site would remain as it is under existing conditions. The project site would remain vacant and no new high school would be developed. The following sections provide an analysis of the No Project/No Build Alternative.

Aesthetics

Under the No Project/No Build Alternative, the existing conditions of the project site would remain, and no changes would occur. With no development, Alternative 1 would have no impacts on the existing visual character or quality of the site and its surroundings. Additionally, Alternative 2 would not create a new source of light or glare. Alternative 1 would result in no impact. The project's less than significant impacts would be reduced under the No Project/No Build Alternative. Alternative 1 would result in lesser impacts that the proposed project.

Agricultural Resources

Under the No Project/No Build Alternative, the development proposed under the proposed project would not occur. The project site would remain vacant. Therefore, no locally significant agricultural resources would be developed for non-agricultural uses. None of the agricultural impacts associated with the proposed project would occur under the No Project/No Build Alternative.

Air Quality

Alternative 1 would not result in any construction or changes in the existing setting. The site is currently vacant. Existing conditions would persist and no new criteria pollutant and greenhouse gas (GHG) emissions would be generated. Further, no new odors would be introduced to the project site. The project's less than significant impacts would be reduced under the No Project/No Build Alternative. Alternative 1 would result in lesser impacts that the proposed project.

Biological Resources

Under the No Project/No Build Alternative, the existing conditions on the project site would remain, and no development would occur. Impacts to biological resources, such as special-status species and wetlands, would be reduced from less than significant with mitigation under the proposed project, to no impact under the No Project Alternative. No special-status species, jurisdictional wetlands, or trees would be disturbed under the No Project/No Build Alternative and current land uses would remain at the project site. None of the biological resources impacts associated with the proposed project would occur under the No Project/No Build Alternative.

Cultural Resources

No cultural resources were identified within the project area. However, the project area is considered sensitive for prehistoric archaeological resources and ground-disturbing activities related to the proposed project would impact previously unidentified archaeological resources.

This alternative would maintain site conditions in their current state, eliminating the potential for archaeological resource disturbance. The project's less than significant impacts with mitigation would be avoided. Impacts to archaeological and paleontological resources, as well as human remains, would be reduced from less than significant with mitigation under the proposed project, to no impact under the No Project Alternative, as no ground disturbance that could encounter buried and unrecorded resources would occur. None of the cultural resources impacts associated with the proposed project would occur under the No Project/No Build Alternative.

Energy

Under the No Project/No Build Alternative, the existing conditions on the project site would remain, and no development would occur. Existing conditions would persist and no development increasing the demand of electricity, natural gas, water, or transportation fuel would occur. The project's less than significant impacts would be reduced.

Geology, Soils, and Seismicity

Under the No Project/No Build Alternative, the existing conditions on the project site including the existing geologic and seismic hazards would remain, but no development would occur. With no development, there would be no increased risks related to geologic or seismic hazards and, therefore, the potential impacts would be reduced from less than significant for the proposed project to no impact under Alternative 1.

Greenhouse Gas Emissions

Similar to air quality issues, under the No Project/No Build Alternative, the existing conditions on the project site would remain, and no development would occur. Therefore, Alternative 1 would not result in any local emissions of greenhouse gases because it would not generate traffic in the project vicinity and would not result in energy demand, both of which are key contributors to greenhouse gas emissions. Therefore, the project's less than significant impacts would be reduced under this alternative. None of the greenhouse gas emissions impacts associated with the proposed project would occur under the No Project/No Build Alternative.

Hydrology and Water Quality

Under the No Project/No Build Alternative, the existing conditions on the project site would remain and no development would occur. The project site is currently vacant and does not contain any impervious surfaces that would interfere with groundwater recharge or the natural drainage of the site. Under this alternative, the potential for degradation of groundwater quality during construction activities would not occur. Therefore, the project's less than significant impacts with mitigation would not occur. None of the hydrology and water quality impacts associated with the proposed project would occur under the No Project/No Build Alternative.

Land Use and Planning

Under the No Project/No Build Alternative, the existing conditions of the project site would remain, and no changes would occur. The project site would remain vacant with no public

services. Since no development would occur, the visual character of the site would remain the same. Impacts to land use would be the same under the No Project Alternative as under the proposed project. However, this impact would not fulfill any of the objectives for this site as described in the County's General Plan and Zoning Code that encourage school development to support planned growth. It would also not provide public amenities or services, such as athletic fields, or a new high school.

Noise

Under Alternative 1, existing site conditions would continue and no changes to ambient noise, whether permanent, periodic, or temporary, would occur. In addition, no construction activity would occur, eliminating construction noise and vibration associated with the proposed project. While the project's impacts have been reduced to a less than significant level with the incorporation of mitigation measures, these less than significant impacts would be reduced under Alternative 1. None of the noise impacts associated with the proposed project would occur under the No Project/No Build Alternative.

Population and Housing

Under the No Project/No Build Alternative, the existing conditions of the project site would remain, and no changes would occur. The No Project/No Build Alternative would not induce substantial population, housing, or job growth, either directly or indirectly because no development would occur. Impacts to population and housing would be reduced from less-than-significant to no impact under the No Project/No Build Alternative.

Public Services

Under the No Project/No Build Alternative, the existing conditions of the project site would remain, and no changes would occur. The site would remain vacant. Fire and emergency services, police services, schools, and parks and recreation facilities would not be affected. Therefore, this Alternative 1 would reduce all less than significant impacts to no impact.

Transportation and Traffic

The No Project/No Build Alternative would not result in any changes to the project site. The site would remain vacant and no new uses would be developed at the site that would generate traffic. This alternative would eliminate the need for construction of adequate emergency access at this site and would not affect alternative transportation as it stands under existing conditions. Additionally, the vacant site will not generate any vehicle trips on area roadways. The project's cumulative less than significant impacts with mitigation would be avoided. Cumulative impacts would be reduced from less than significant with mitigation under the proposed project, to no impact under the No Project/No Build Alternative, as no new traffic would be added. In general, the No Project Alternative would result in fewer impacts to transportation and traffic than the proposed project. None of the transportation and traffic impacts associated with the proposed project would occur under the No Project/No Build Alternative.

Tribal Cultural Resources

Under the No Project/No Build Alternative, the existing conditions on the project site would remain, and no development would occur. No Tribal cultural resources were identified within the project area. Impacts to tribal cultural resources would be reduced from less-than-significant to no impact under the No Project/No Build Alternative.

Utilities

Under the No Project/No Build Alternative, the existing conditions on the project site would remain, and no development would occur. Under Alternative 1, no new high school would require connections to water and wastewater systems. In addition, installation of site drainage systems and disposal of solid waste to County landfill would not be required. Therefore, the project's less than significant impacts would be further reduced. None of the impacts to utilities associated with the proposed project would occur under the No Project/No Build Alternative.

Conclusion

Potential impacts associated with the implementation of development under Alternative 1 are compared to the potential impacts of development of the proposed project. Compared to the proposed project, impacts associated with aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hydrology and water quality, noise, public services, transportation and traffic, and utilities would not occur. The impacts related to the regional construction emissions would be substantially reduced from less than significant under the proposed project to no impact.

The implementation of this Alternative would result in less environmental impacts compared to the proposed project. However, this Alternative would not meet the objectives of providing a public high school to accommodate the anticipated growth in the BUSD and providing a centrally located high school campus within BUSD.

5.7 Environmental Analysis of Alternative 2 (No Project/Development in Accordance with the General Plan)

The project site is currently served by available water/wastewater service and can feasibly connect to other available utilities. The project site is served by supporting public services. The project site is accessible by existing regional and local roadways, and areas around the project site are developed with residential, recreational, and commercial uses. Alternative 2 would result in continued and increased overcrowding at existing Bonsall High School on the Sullivan Middle School Campus.

The project site is located within the Fallbrook Community Plan, and has a Public/Semi-Public Facilities General Plan Land Use designation. The project site is zoned Limited Agricultural (A70). This land use designation is intended to accommodate uses such as institutional uses, academic facilities, governmental complexes, and community service facilities, such as County

airports, public schools, correction institutions, solid waste facilities, water facilities, and sewer facilities. A maximum FAR of 0.50 is permitted by this designation.

Given the project site's Public/Semi-Public Facilities General Plan Land Use designation; availability of infrastructure/services, lack of physical constraints; and accessibility, it is unlikely that the project site would remain vacant or in a "No Build" condition indefinitely. Failure to proceed with the proposed project would likely not result in preservation of existing environmental conditions, and the practical result of the project's non-approval would be the development of another type or configuration of Public/Semi-Public Facilities uses within the project site that are consistent with the general plan land use designations and zoning. If the proposed project were not constructed on the project site, BUSD would sell the property to secure funds for construction of the proposed project on another site, if available.

Alternative 2 could result in greater development in terms of square footage of the site than the proposed project. The proposed project would include 150,500 square feet of total building area, while Alternative 2 could include up to 1,065,042 building square feet (maximum buildout with a FAR of 0.50). This Alternative could generate as much as 73,413 average daily trips (ADT). However, the range of traffic for this land use designation could be large and this ADT assumes a conservative scenario. The Alternative 2 would reduce noise impacts associated with outdoor and special events. Other discipline areas would have greater impacts or the same impacts as the proposed project as discussed below.

Aesthetics

Alternative 2 could result in greater development of the site (more square footage and more acreage) that the proposed project. Similar to the project, this alternative could change the visual character of the site by adding buildings; however, the overall development including building mass and scale could be greater than the proposed project. Several trees could be removed and would not provide visual screening of the buildings. Site character and quality impacts could potentially be greater, but still similar (less than significant), when compared with the proposed project.

Agricultural Resources

Alternative 2 would result in development of the project site. Similar to the proposed project, this Alternative would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use. This Alternative 2 would not result in a conflict with a Williamson Act contract. The project site is not currently used for agriculture and has no history of agricultural use. Development of the proposed high school would not result in the conversion of potential farmland or forest land in the vicinity to non-agricultural use. Impacts would be less than significant similar to the proposed project.

Air Quality

With Alternative 2, up to 1,065,042 square feet of development would be allowed, resulting in up to 914,542 additional square feet that would be developed under the proposed project. This could

result in greater construction activity, and therefore, greater regional construction emissions from construction equipment and employee vehicle trips.

Additionally, development under Alternative 2 would result in greater operational vehicle trips resulting in greater operational criteria pollutant and GHG emissions than those generated by the proposed project.

Under Alternative 2, sensitive receptors could be exposed to greater concentrations of toxic air contaminants and respirable particulate matter during construction activities due to greater construction activity required. Depending on the type of use developed under this alternative, Alternative 2 may create objectionable odors if the use involves solid waste facilities or agricultural operations.

Under Alternative 2, development would be consistent with the General Plan and therefore would not conflict or obstruct implementation of the applicable AQMP. Impacts resulting from criteria pollutant emissions and toxic air contaminants could be greater, any may require implementation of mitigation when compared to the proposed project (less than significant with no mitigation required). Odor impacts could potentially be greater, but still similar (less than significant), when compared with the proposed project.

Biological Resources

Similar to the proposed project, Alternative 2 would result in potential impacts to special-status species through project construction. Alternative 2 could result in more developed land compared to the proposed project.

Alternative 2 could have significant effects on species because the project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Under this alternative implementation of Mitigation Measures BIO-1 through BIO-3 would still be required to ensure impacts are less than significant. Further, like the proposed project, Alternative 3 would result in the removal of two canyon live oaks (*Quercus chrysolepis*) as a result of construction of the access road in the southeast potion of the project site. Mitigation Measure BIO-4 would still be required to ensure impacts to biological resources are less than significant

Unlike the proposed project, Alternative 2 could have a substantial adverse effect on riparian habitat or other sensitive natural community and wetlands because Alternative 2 would result in greater development of the site.

Alternative 2 could result is significant impacts that would be greater when compared to the proposed project.

Cultural Resources

There are no known historical, archaeological, paleontological, or human remains on the project site. Gird Road is a known historic architectural resource. The road has not been previously

evaluated for listing in the California Register; however, because the road has been paved and realigned since its original construction, the integrity of the road is poor and it no longer retains the essential features that would convey its historic identity. Gird Road would be used to access the site during proposed project construction, but would not be re-aligned, or otherwise altered as part of Alternative 2, and Alternative 2 would not impact the resource.

Alternative 2 could result in a greater level of impacts to archaeological and paleontological resources, as well as human remains, in comparison to the proposed project because this alternative could have an increased level of ground-disturbing construction, which could encounter previously unrecorded resources. Similar to the proposed project, implementation of: Mitigation Measures CUL-1 through CUL-4 (Unanticipated Discovery of Archaeological Resources), CUL-5 through CUL-8 (Unanticipated Discovery of Paleontological Resources), and Mitigation Measure CUL-9 (Unanticipated Discovery of Human Remains), would also reduce the impacts of Alternative 2 to a less-than-significant level by ensuring appropriate treatment of the unanticipated discoveries of such resources. In general, Alternative 2 could result in slightly greater level of impacts to cultural resources as the proposed project.

Energy

Alternative 2 could increase the total square footage of development and could require more electricity, natural gas, and water to operate. Additionally, Alternative 2 could result in greater than 60 employees and 1,500 students. Therefore, vehicle trips would be greater under this alternative, requiring more gasoline and/or diesel to fuel staff and visitor vehicle trips. Alternative 2 would result in slightly greater impacts but remain less than significant.

Geology and Soils

Under Alternative 2, there would be more development onsite as compared to the proposed project. All development would be required to incorporate site preparation, foundation design, and structural design methods in accordance building code requirements such that geologic and seismic hazards are reduced to less than significant levels. Alternative 2 would also implement Project Design Feature 3.4-1 to reduce the potential impacts from seismic-related ground failure, including liquefaction to a less-than-significant level. As a result, the potential impacts from Alternative 2 would be relatively similar to the proposed project.

Greenhouse Gas Emissions

Development under this alternative and the proposed project would not conflict with any applicable plan, policy, or regulation. Similar to air quality issues, Alternative 3 would result in increased construction and operational emissions because it would require greater construction activity, energy to operate, and would generate more traffic than the proposed project. Therefore, Alternative 3 would result in greater impacts.

Hydrology and Water Quality

Similar to the proposed project, Alternative 2 construction activities could result in accidental spills or disposal of potentially harmful materials that could wash into and pollute surface waters

or groundwater. Construction activities would also expose soils for a limited time, allowing for possible erosion and sediments to enter into sheet flow runoff, which could enter the existing storm drain system. Alternative 2 would be required to prepare a SWPPP for construction activities. The SWPPP would require erosion control, sediment control, waste management, and good housekeeping BMPs that would prevent stormwater from mixing with sediment and/or chemicals from the construction site. Implementation of a SWPPP would reduce potential water quality impacts to less than significant levels. Construction activities may encounter perched groundwater, that would require dewatering. To ensure significant impacts to water quality do not occur during construction, Mitigation Measure HYDRO-1 would require dewatered groundwater to be tested for potential contaminants as specified by Conditional Waiver No. 2. If dewatering is required and if contaminants are detected, dewatered groundwater must be treated onsite prior to its eventual recharge onsite back into the groundwater basin. Therefore, water quality of nearby surface waters and groundwater would be protected via compliance with Conditional Waiver No. 2 stipulations. Impacts would be less than significant with mitigation, similar to the proposed project.

Alternative 2 would not directly access any underlying groundwater resources. Water would be supplied for project operations by the Rainbow Municipal Water District and would not substantially deplete groundwater supplies. Alternative 2 would result in an overall reduction of pervious surfaces onsite by developing a greater portion of the site. Moreover, Alternative 2 would not maintain a larger amount of pervious surfaces and would not provide undisturbed open space on the site. Alternative 2woudl not maintain potential areas for groundwater recharge. Runoff would be directed from catch basins onsite to stormwater quality basins, which would encourage infiltration of surface water back into the groundwater. Therefore, impacts related to interference with groundwater recharge via reduction in impervious surfaces would be less than significant with project design features. Impacts associated with depleting groundwater supplies or interfering with groundwater recharge are less than significant, similar to the proposed project.

Alternative 2 would not substantially alter the existing drainage patterns at the site or result in substantial erosion or siltation. Impacts would be less than significant, similar to the proposed project.

Construction of Alternative 2 is not expected to generate large amounts of water that would substantially increase the rate or amount of surface runoff, or exceed the capacity of existing or planned stormwater drainage systems and impacts would be less than significant, similar to the proposed project. Implementation of Alternative 2 isn't expected to increase stormwater volumes or rates of discharge or add additional pollutants to stormwater drainage systems and impacts would be less than significant, similar to the proposed project.

Under Alternative 2, all impacts resulting from hydrology and water quality would be similar (less than significant with mitigation) when compared to the proposed project.

Land Use and Planning

Development under Alternative 2 would be in consistent with the General Plan Land Use designation and the zoning designation. Alternative 2 would not require a General Plan

Amendment or zone change. The project would be consistent with the goals, policies, and ordinances. Under Alternative 2, no land use land use impacts would occur and would be similar when compared to the proposed project.

Noise

Similar to the proposed project, Alternative 2 would result in short-term construction-related noise impacts related to a substantial temporary increase in the ambient noise levels in the project vicinity. While this alternative would increase the square footage developed, it is anticipated that construction-related noise levels generated during a peak day at the site would be similar to those generated by the proposed project on a peak construction day. As such, similar to the proposed project, implementation of Mitigation Measures NOI-2 would be required to reduce construction noise levels to a less-than-significant level. However, because of the increased development under this alternative, the overall duration of the construction activities would be longer than that for the proposed project. Consequently, construction noise impacts under the Alternative 2 would be greater but result in similar less than significant impacts when compared to the proposed project due to its longer construction duration.

In addition, because the construction equipment used during a peak construction day under this alternative would the same as those used by the proposed project, impacts associated with vibration during construction activities would be similar and would be less than significant.

Alternative 2 could result in significant impacts related to operational noise due to a greater amount of outdoor events, employees, visitors onsite, and proximity to adjacent residences. Therefore, Alternative 2 would result in similar potentially significant impacts as the proposed project.

Off-site operational traffic noise would be increased as this alternative would result in up to 71,463 greater vehicle trips, resulting in greater project-related trips on local roadways and greater trips to the site. According to traffic volumes provided in the project traffic study, the segment of Gird Road where the project site is located currently has an average daily traffic volume of 4,000 trips. The doubling of sound energy (or doubling of traffic) results in a noise level increase of 3 dBA. With the addition of 71,463 daily trips (well greater than double) from development of Alternative 2, traffic noise levels would be increased by greater than 3 dBA. The project's less than significant impacts would be increased under Alternative 2 to potentially significant and unavoidable.

Public Services

Alternative 2 would not generate any new residents. However, Alternative 2 could result in more employees at buildout than the proposed project. Because implementation of this alternative could result in more people onsite, it could generate increased demand for fire protection, police, school, and library services. However, the increase in employees would not be substantial enough to result in the need for expanded public services. Therefore, impacts from Alternative 2 related to public services would be slightly greater than the less than significant impacts of the proposed project. However, impacts would remain less than significant similar to the proposed project.

Transportation and Traffic

The range of traffic for this Alternative could be large and this analysis assumes a conservative scenario. This Alternative could generate as much as 73,413 ADT compared to 1,950 ADT for the proposed project. Because more vehicle trips would be required, as compared to the project, new daily vehicle trips would be increased and am/pm peak trips could also increase as compared to the proposed project. As a result of this increased trip generation, this alternative could increase impacts to intersections. Alternative 2 would result in greater impacts related to construction and operational traffic increases, design hazards, emergency access, and cumulative traffic impacts. Like the proposed project, no impacts would result from conflicts with an applicable congestion management program.

Tribal Cultural Resources

Alternative 2 would result in construction on the same project site. No tribal cultural resources have been identified within or immediately adjacent to the project site. Therefore, Alternative 2 would result in similar less than significant impacts to tribal cultural resources.

Utilities

Alternative 2 could result in an increase in the demand for water, wastewater services, and solid waste disposal that would be less than significant. Under Alternative 2, the project site could be developed with larger building area. These increased utility demands would be similar to the demands generated by the project and would be similarly less than significant. Thus, under Alternative 2, impacts related to utilities and service systems would be the same as the proposed project.

Conclusion

Potential impacts associated with the implementation of development under Alternative 2 are compared to the potential impacts of development of the proposed project. Compared to the proposed project, impacts associated with aesthetics, air quality, biological resources, energy, greenhouse gas emissions, hydrology and water quality, noise, transportation and traffic, and utilities could result in greater impacts.

The implementation of this Alternative would result in greater environmental impacts compared to the proposed project. This Alternative would not meet the objectives of providing a public high school to accommodate the anticipated growth in the BUSD, providing a centrally located high school campus within BUSD, minimizing impacts to sensitive environmental resources and the surrounding community, and allowing phased construction of the high school campus in accordance with student population growth projections and available construction funding.

5.8 Environmental Analysis of Alternative 3 (Phase 1 Only)

Under this alternative, Phase 2 of the proposed high school would not be developed. Phase 1 includes development of the administration building, food service building, locker rooms, one academic building, gymnasium areas, soccer field, basketball hardcourts, and parking to serve a maximum of 500 students and employ 20 teachers, aides, administrators, and other personnel. According to preliminary Phase 1 plans, a total of 46,270 square feet of building area would be developed. High school capacity under Alternative 3 would be reached much sooner than the proposed project, as it would be designed to accommodate only 500 students as comparted to 1,500 students.

Aesthetics

Alternative 3 would result in development of Phase 1 only. This reduces the square footage of the project by approximately 30 percent from 150,500 square feet to 46,270 square feet. Similar to the proposed project, this alternative would change the visual character of the site by adding buildings; however, the overall development including building mass and scale would be reduced. Also, Alternative 3, like the proposed project would not degrade the existing visual character or quality of the site and its surroundings. Existing trees would be retained and would screen some views of the site. Additionally, portions of the site would be partially screened from view due to undisturbed topography (the on-site elevation ranges from 265 to 288 amsl) and vegetation. Alternative 3 would result in less development on site. Similar to the proposed project, this Alternative would result in less than significant impacts.

Since total square footage is reduced by about 30 percent, this Alternative would introduce less light and glare to the site and surrounding vicinity than the proposed project. Impacts resulting from light and glare would be less than significant, similar to the proposed project.

Under Alternative 2, impacts resulting from visual change in character and site quality would be less (building mass and scale), but similar (less than significant) when compared to the proposed project. Light and glare impacts would be less (introduce less light and glare), but still similar (less than significant), when compared with the proposed project.

Agricultural Resources

Alternative 3 would develop a reduced project on land zoned for Limited Agriculture. Although the LARA Model results and associated thresholds indicate that the project site is not an important agricultural resource, school districts are exempt from local zoning and land use regulatory authority pursuant to Government Code Section 53094. As such the Alternative 3 is not subject to San Diego County regulations and ordinances and the project would not result in the conversion of Farmland of Local Importance to non-agricultural use. Impacts would be similar to the proposed project.

Air Quality

With Alternative 3, educational buildings would be developed, but the square footage would be about 30 percent less than developed under the proposed project. This would result in less construction activity, and therefore, less regional construction emissions from construction equipment and employee vehicle trips.

Additionally, Phase 1 would serve a maximum of 500 students and employ 20 teachers, aides, administrators, and other personnel, amounting to 1,000 less students and 40 fewer staff compared to the proposed project. operational criteria pollutant and GHG emissions would be less than those generated by the proposed project.

Like the proposed project, Alternative 3 would not expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter, nor would the alternative create objectionable odors that would affect a substantial number of people. Odor impacts would be less, but still similar (less than significant), when compared with the proposed project.

Biological Resources

Similar to the proposed project, Alternative 3 would result in potential impacts to special-status species through project construction. Alternative 3 would result in greater undeveloped land compared to the proposed project.

Alternative 3 could have significant effects on species because the project could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Under this alternative implementation of Mitigation Measures BIO-1 through BIO-3 would still be required to ensure impacts are less than significant. Further, like the proposed project, Alternative 3 would result in the removal of two canyon live oaks (*Quercus chrysolepis*) as a result of construction of the access road in the southeast potion of the project site. Mitigation Measure BIO-4 would still be required to ensure impacts to biological resources are less than significant

Similar to the proposed project, Alternative 3 would not have a substantial adverse effect on any riparian habitat or other sensitive natural community, on wetlands, or interfere substantially with the movement of native resident or migratory fish or wildlife species

Under Alternative 3, impacts related to biological resources would be similar (less than significant with mitigation) when compared to the proposed project.

Cultural Resources

There are no known historical, archaeological, paleontological, or human remains on the project site. Gird Road is a known historic architectural resource. The road has not been previously evaluated for listing in the California Register; however, because the road has been paved and realigned since its original construction, the integrity of the road is poor and it no longer retains the essential features that would convey its historic identity. Gird Road would be used to access

the site during proposed project construction, but would not be re-aligned, or otherwise altered as part of Alternative 3, and Alternative 3 would not impact the resource.

Alternative 3 would result in a somewhat reduced level of impacts to archaeological and paleontological resources, as well as human remains, in comparison to the proposed Project because this alternative would have a somewhat reduced level of ground-disturbing construction, which could encounter previously unrecorded resources. Similar to the proposed Project, implementation of: Mitigation Measures CUL-1 through CUL-4 (Unanticipated Discovery of Archaeological Resources), CUL-5 through CUL-8 (Unanticipated Discovery of Paleontological Resources), and Mitigation Measure CUL-9 (Unanticipated Discovery of Human Remains), would also reduce the impacts of Alternative 3 to a less-than-significant level by ensuring appropriate treatment of the unanticipated discoveries of such resources. In general, Alternative 3 would result in a somewhat reduced level of impacts to cultural resources as the proposed project.

Energy

Alternative 3 would reduce the total square footage of the project and would require less electricity, natural gas, and water to operate. Additionally, Phase 1 would serve a maximum of 500 students and employ 20 teachers, aides, administrators, and other personnel, amounting to 1,000 less students and 40 fewer staff compared to the proposed project. Therefore, vehicle trips would be reduced under this alternative, requiring less gasoline and/or diesel to fuel staff, student, and parent vehicle trips. The project's less than significant impacts would be reduced.

Geology and Soils

While there are changes in the number of buildings in Alternative 3, all development would nonetheless be required to incorporate site preparation, foundation design, and structural design methods in accordance building code requirements such that geologic and seismic hazards are reduced to less than significant levels. Alternative 3 would also implement Project Design Feature 3.4-1 to reduce the potential impacts from seismic-related ground failure, including liquefaction to a less-than-significant level. As a result, the potential impacts from Alternative 3 would be relatively similar to the proposed project.

Greenhouse Gas Emissions

Development under this alternative and the proposed project would not conflict with any applicable plan, policy, or regulation. Similar to air quality issues, Alternative 3 would result in reduced construction and operational emissions because it would require less construction activity, energy to operate, and would generate less traffic than the proposed project. Therefore, Alternative 3 would result in similar less than significant impacts.

Hydrology and Water Quality

Similar to the proposed project, Alternative 3 construction activities could result in accidental spills or disposal of potentially harmful materials that could wash into and pollute surface waters or groundwater. Construction activities would also expose soils for a limited time, allowing for possible erosion and sediments to enter into sheet flow runoff, which could enter the existing

storm drain system. Alternative 3 would be required to prepare a SWPPP for construction activities. The SWPPP would require erosion control, sediment control, waste management, and good housekeeping BMPs that would prevent stormwater from mixing with sediment and/or chemicals from the construction site. Implementation of a SWPPP would reduce potential water quality impacts to less than significant levels. Construction activities may encounter perched groundwater, that would require dewatering. To ensure significant impacts to water quality do not occur during construction, Mitigation Measure HYDRO-1 would require dewatered groundwater to be tested for potential contaminants as specified by Conditional Waiver No. 2. If dewatering is required and if contaminants are detected, dewatered groundwater must be treated onsite prior to its eventual recharge onsite back into the groundwater basin. Therefore, water quality of nearby surface waters and groundwater would be protected via compliance with Conditional Waiver No. 2 stipulations. Impacts would be less than significant with mitigation, similar to the proposed project.

Alternative 3 would not directly access any underlying groundwater resources. Water would be supplied for project operations by the Rainbow Municipal Water District and would not substantially deplete groundwater supplies. Alternative 3 would result in an overall reduction of pervious surfaces onsite by adding school building floor area and parking lot surface. However, the Alternative 3 would maintain a larger amount of pervious surfaces and undisturbed open space on the site thereby maintaining potential areas for groundwater recharge. Further, runoff would be directed from catch basins onsite to stormwater quality basins, which would encourage infiltration of surface water back into the groundwater. Therefore, impacts related to interference with groundwater recharge via reduction in impervious surfaces would be less than significant. Impacts associated with depleting groundwater supplies or interfering with groundwater recharge are less than significant, similar to the proposed project.

Alternative 3 would not substantially alter the existing drainage patterns at the site or result in substantial erosion or siltation. Impacts would be less than significant, similar to the proposed project.

Implementation of mitigation measure Hydro-1 would ensure that the project is designed to meet drainage control requirements to ensure that 100 percent of peak runoff volumes are contained on-site. In addition, because there are no rivers or streams in the vicinity, the project would not alter a river or stream. Impacts would be less than significant, similar to the proposed project.

Construction of Alternative 3 is not expected to generate large amounts of water that would substantially increase the rate or amount of surface runoff, or exceed the capacity of existing or planned stormwater drainage systems and impacts would be less than significant, similar to the proposed project. Implementation of Alternative 3 isn't expected to increase stormwater volumes or rates of discharge or add additional pollutants to stormwater drainage systems and impacts would be less than significant, similar to the proposed project.

Under Alternative 3, all impacts resulting from hydrology and water quality would be similar (less than significant with mitigation) when compared to the proposed project.

Land Use and Planning

Similar to the proposed project, Alternative 3 would be an allowable use under the General Plan and zoning designations. The County of San Diego General Plan and Fallbrook Community Plan designate the project site as a Public/Semi-Public Facilities land use, with a zone of Limited Agricultural. Public/Semi-Public Facilities includes major facilities built and maintained for public use such as academic facilities and public schools. The project site currently consists of vacant, undeveloped natural land. Alternative 3 would include 46,270 square feet of building floor area and recreational fields, parking, and landscape/hardscape. The proposed use under Alternative 3 is consistent with the County of San Diego General Plan land use designation.

Further, according to the County of San Diego Zoning Code, Section 2705, the Limited Agriculture Zone allows for Major Impact Services and Utilities use type with the issuance of a Major Use Permit. This use type refers to public facilities such as schools as described in section 3.10.2, Regulatory Setting. Therefore, the proposed use under Alternative 3 is consistent with the Zoning code and would not require any changes in zoning.

Per Government Code Section 53094 et seq. Subdivision (b), BUSD, as the lead agency, is not required to comply with the local general plan and zoning codes; nonetheless, the proposed project would be consistent with the existing County of San Diego general plan land use and zoning designations and requirements. The proposed project components would not conflict with County of San Diego General Plan goals and policies, nor would it conflict with allowable uses within the Limited Agriculture zone or existing neighboring land uses. As a result, the proposed project and Alternative 3 would similarly result in no impact.

Noise

Similar to the proposed project, Alternative 3 would result in short-term construction-related noise impacts related to a substantial temporary increase in the ambient noise levels in the project vicinity. While this alternative would decrease the square footage developed, it is anticipated that construction-related noise levels generated during a peak day at the site would be similar to those generated by the proposed project on a peak construction day. As such, similar to the proposed project, implementation of Mitigation Measures NOI-2 would be required to reduce construction noise levels to a less-than-significant level. However, because of the reduced development under this alternative, the overall duration of the construction activities would be shorter than that for the proposed project. Consequently, construction noise impacts under the Alternative 3 would be less but result in similar less than significant impacts when compared to the proposed project due to its shorter construction duration.

In addition, because the construction equipment used during a peak construction day under this alternative would the same as those used by the proposed project, impacts associated with vibration during construction activities would be similar and would be less than significant.

It is anticipated that operational noise would be less than that generated by the proposed project. Specifically, the proposed project would result in impacts to residential uses to the north as a result of campus noise. However, under Alternative 3, the nearest school building that would

potentially have a mounted school bell to residential uses would be about 650 feet. It is assumed that school bells can reach noise levels of up to 115 dBA Leq at a distance of 6.5 feet (Hear-It, 2017). Assuming that there are no barriers between proposed school buildings and neighboring residential uses blocking the line-of-site of the school bells, noise levels could reach up to 75 dBA Leq at residential uses to the north. The allowable 82 dBA Leq impulse sound level would not be exceeded at residential uses to the north. Therefore, operational impacts related to Alternative 3 would be less than significant which would be less than those of the project (less than significant with mitigation).

Operational noise would be reduced as this alternative would result in fewer vehicle trips, resulting in less project-related trips on local roadways and less teacher, student, and parent trips to the site. The project's less than significant impacts would be reduced under Alternative 3.

Public Services

Alternative 3 would result in a somewhat reduced demand for fire and emergency services, police services compared with the proposed project. Similar to the proposed project, Alternative 3 would be adequately served by the existing fire and police services and would not require additional police or fire services. The construction of a reduced capacity high school under Alternative 3 would not provide for sufficient capacity to serve new students in future buildout of the area. As a result, additional development elsewhere may be required and the objectives are not met.

Under Alternative 3 potential impacts related to public services would be somewhat reduced and the impacts would remain less than significant.

Transportation and Traffic

Alternative 3 would develop the project site with a similar educational and recreational use as the proposed project; however, fewer classrooms would be constructed and less students and staff would be generated. Because fewer vehicle trips would be required, as compared to a larger capacity school, new daily vehicle trips would be reduced by approximately 67 percent, am peak trips would be reduced by 67 percent, and pm peak trips would be reduced by 67 percent. Improvements to Gird Road would remain a requirement for Alternative 3. As a result of the decreased trip generation this alternative would reduce severity of impacts to Old River Road [West] / Camino Del Rey intersection. Alternative 3 would result in less impacts as compared to the proposed project. Like the proposed project, impacts related to creation of hazards, emergency access, conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, and temporary increases in traffic volumes on area roadways during construction would remain less than significant.

Tribal Cultural Resources

Alternative 3 would result in similar construction on the same project site. No tribal cultural resources have been identified within or immediately adjacent to the project site. Therefore, Alternative 3 would result in similar less than significant impacts to tribal cultural resources.

Utilities

The proposed project would result in an increase in the demand for water, wastewater services, and solid waste disposal that would be less than significant. Under Alternative 3, the project site would be developed with a reduced amount of classrooms and thus, increased demand for water, wastewater, or solid waste services would be less than the demands generated by the project and would be similarly less than significant. Thus, under Alternative 3, impacts related to utilities and service systems would be less than the project's less than significant impacts.

Conclusion

Potential impacts associated with the implementation of development under Alternative 3 are compared to the potential impacts of development of the proposed project. Compared to the proposed project, impacts associated with aesthetics, air quality, biological resources, cultural resources, energy, geology and soils, greenhouse gas emissions, hydrology and water quality, noise, public services, transportation and traffic, and utilities would result in fewer impacts. The impacts related to the regional construction emissions would be substantially reduced from less than significant under the proposed project to no impact.

The implementation of this Alternative would result in less environmental impacts compared to the proposed project. This Alternative would meet the objectives of providing a public high school to accommodate the anticipated growth in the BUSD, providing a centrally located high school campus within BUSD, minimizing impacts to sensitive environmental resources and the surrounding community. However, this Alternative 3 would not meet the objective of allowing phased construction of the high school campus in accordance with student population growth projections and available construction funding.

5.8 Comparative Summary of the Alternatives

Table 5-1 below provides the significance determinations for each environmental impact discussion for each of the alternatives as compared to the proposed project. The table provides a ready means for the reader to review and compare the alternatives with each other, and with the proposed project. **Table 5-2** demonstrates each alternative's consistency with the project objectives.

TABLE 5-1
ALTERNATIVE COMPARISON

Environmental Issue	Proposed Project	Alternative 1: No Project/ No Development	Alternative 2: No Project/ Development in Accordance with the General Plan	Alternative 3: Phase I Only
Aesthetics				
Visual Character	LS	NI (L)	LS (G)	LS (L)
Light and Glare	LS	NI (L)	LS (G)	LS (L)
Agricultural Resources				
Prime Farmland, Unique Farmland, or Farmland of Statewide Importance	NI	NI	LS (G)	NI (E)
Existing Zoning for Agricultural Use	LS	NI	LS (G)	LS (E)
Conversion of Farmland to Non-Agricultural Use	LS	NI	LS (G)	LS (E)
Air Quality				
Air Quality Plan	LS	NI (L)	LS (E)	LS (L)
Air Quality Standards/Violations	LS	NI (L)	(G)*	LS (L)
Criteria Pollutant	LS	NI (L)	(G)*	LS (L)
Sensitive Receptors	LS	NI (L)	(G)*	LS (L)
Biological Resources				
Effects on Species	LSM	NI (L)	LSM (G)	LSM (E)
Riparian Habitat or Sensitive Natural Community	LS	NI (L)	LSM (G)	LS (E)
Federally Protected Wetlands	LS	NI (L)	LSM (G)	LS (E)
Wildlife Corridors and Nursery Sites	LS	NI (L)	LS (E)	LS (E)
Local Policies or Ordinances Protecting Biological Resources	LSM	NI (L)	LSM (E)	LSM (E)
Conservation Plans	NI	NI (E)	LSM (G)	NI (E)
Cultural Resources				
Historical Resources	LSM	NI (L)	LSM (E)	LSM (E)
Archaeological Resources	LSM	NI (L)	LSM (E)	LSM (E)
Paleontological Resources	LSM	NI (L)	LSM (E)	LSM (E)

Environmental Issue	Proposed Project	Alternative 1: No Project/ No Development	Alternative 2: No Project/ Development in Accordance with the General Plan	Alternative 3: Phase I Only
Human Remains	LSM	NI (L)	LSM (E)	LSM (E)
Energy				
Energy Conservation Plans	LS	NI (L)	LS (G)	LS (E)
Unnecessary Consumption of Energy	LS	NI (L)	LS (G)	LS (E)
Construction of New Energy Facilities	LS	NI (L)	LS (G)	LS (E)
Geology and Soils				
Strong Seismic Ground Shaking	LS	NI (L)	LS (G)	LS (L)
Liquefaction and Lateral Spreading	LS	NI (L)	LS (G)	LS (L)
Soil Erosion or Topsoil Loss	LS	NI (L)	LS (G)	LS (L)
Geologic Instability	LS	NI (L)	LS (G)	LS (L)
Greenhouse Gases				
Greenhouse Gas Emissions	LS	NI (L)	(G)*	LS (L)
Conflict with Plan, Policy, or Regulation that Reduces Greenhouse Gas Emissions	LS	NI (L)	LS (E)	LS (L)
Hydrology and Water Quality				
Water Quality Standards/Waste Discharge Requirements	LSM	NI (L)	LSM (G)	LSM (E)
Groundwater Supplies and Recharge	LS	NI (L)	LS (G)	LS (L)
Erosion/Siltation	LS	NI (L)	LS (G)	LS (L)
Stormwater Drainage Capacity	LS	NI (L)	LS (G)	LS (L)
Surface Water and Groundwater Quality	LS	NI (L)	LS (G)	LS (L)
Degrade Water Quality	LSM	NI (L)	LSM (G)	LSM (E)

Environmental Issue	Proposed Project	Alternative 1: No Project/ No Development	Alternative 2: No Project/ Development in Accordance with the General Plan	Alternative 3: Phase I Only
Land Use and Planning				
Divide an Established Community	NI	NI (E)	NI (E)	NI (E)
Conflict with Applicable Plans, Policies, or Regulations	NI	NI (E)	LS (G)	NI (E)
Noise and Vibration				
Noise Levels in Excess of Standards	LSM	NI (L)	SU (G)	LSM (L)
Excessive Ground-Borne Vibration	LS	NI (L)	LS (E)	LS (L)
Permanent Increase in Ambient Noise Levels	LS	NI (L)	SU (G)	LS (L)
Temporary or Periodic Increase in Ambient Noise Levels	LSM	NI (L)	LSM (G)	LSM (L)
Public Services				
Fire Protection Services	LS	NI (L)	LS (G)	LS (E
Police Protection Services	LS	NI (L)	LS (G)	LS (E
School Facilities	LS	NI (L)	LS (G)	LS (E)
Transportation and Traffic				
Traffic Increase	LSM	NI (L)	LSM (G)	LS (L)
Congestion Management Program	NI	NI (E)	NI (E)	NI (E)
Air Traffic	NI	NI (E)	NI (E)	NI (E)
Design Hazards	LS	NI (E)	LS (E)	LS (E)
Emergency Access	LS	NI (E)	LS (E)	LS (E)
Public Transit, Bicycle and Pedestrian Facilities	LS	NI (E)	LS (E)	LS (E)
Tribal Cultural Resources				
Tribal Cultural Resources	LS	NI (L)	LS (E)	LS (E)

Environmental Issue	Proposed Project	Alternative 1: No Project/ No Development	Alternative 2: No Project/ Development in Accordance with the General Plan	Alternative 3: Phase I Only
Utilities				
Wastewater Treatment Requirements	LS	NI (L)	LS (G)	LS (L)
Water or Wastewater Treatment Facilities	LS	NI (L)	LS (G)	LS (L)
Stormwater Drainage Facilities	LS	NI (L)	LS (G)	LS (L)
Water Supplies	LS	NI (L)	LS (G)	LS (L)
Landfill Capacity	LS	NI (L)	LS (G)	LS (L)
Compliance with Solid Waste Regulations and Statutes	LS	NI (L)	LS (G)	LS (L)

NOTES:

NI = No Impact (L) = Less than Project

LS = Less than Significant (G) = Greater than Project

LSM = Less than Significant with Mitigation (E) = Equivalent to Project

SU = Significant and Unavoidable

* Alternative 2 impacts associated with air quality and greenhouse gas emissions would be greater than the proposed project due to increased construction (greater square footage) and operational (greater electricity, water, natural gas usage and greater daily vehicle trips) activity that cannot be determined without specific project information.

TABLE 5-2
CONSISTENCY WITH PROJECT OBJECTIVES

Objective	Proposed Project	Alternative 1: No Project/No Build	Alternative 2: No Project/Development Consistent with the General Plan	Alternative 3: Phase I Only
Construct a public high school campus to alleviate overcrowding and to accommodate the anticipated growth in the BUSD high student population over the next 20 years.	Proposed Project would develop a new public high school with two phases of development to accommodate the anticipated growth in the BUSD high school student population.	**Inconsistent:** would not support objective; high school would not be developed	**Inconsistent:** Would not provide a new high school.	**Semi-Consistent:** Would provide a new high school but would only develop one phase and would not accommodate anticipated growth.
Allow for continued growth in the middle school student population and associated educational facilities at the existing Sullivan Middle School.	The proposed project would develop a new high school and would facilitate for future growth.	**Inconsistent:** would not support objective; would not develop a high school and allow for continued growth in the middle school.	**Inconsistent:** Would not provide a new high school.	**Semi-Consistent:** Would provide a new high school but would not accommodate for growth in the next 20 years.
Allow for phased construction of the high school campus in accordance with student population growth projections and available construction funding.	Proposed Project would develop a new public high school with two phases of development to accommodate the anticipated growth in the BUSD high school student population.	**Inconsistent:** would not support objective; would not develop a high school and allow for continued growth in the middle school.	**Inconsistent:** Would not provide a new high school.	**Inconsistent:** Would provide a new high school but would not accommodate for growth in the next 20 years.
Minimize required student transportation and staff commuting distances by centrally locating the high school campus within BUSD not more than 1/4 mile from an arterial or collection road.	The proposed project would provide a new high school in a central area within the BUSD and would be accessible with existing roadways.	**Inconsistent:** would not develop a new centrally located high school.	**Inconsistent:** would not develop a new centrally located high school.	**Consistent**: Would provide a new high school in a centrally located area within BUSD.

Objective	Proposed Project	Alternative 1: No Project/No Build	Alternative 2: No Project/Development Consistent with the General Plan	Alternative 3: Phase I Only
Design and construct the high school to avoid or minimize impacts to sensitive environmental resources and the surrounding community. Minimize impacts to the regional circulation system.	The proposed project would develop a new high school and would avoid sensitive biological resources. The design would also build the school along the existing topography.	**Semi-Consistent.** No development of high school and would not impact sensitive environmental resources.	**Inconsistent.** Development would result in a larger footprint that could impact sensitive environmental resources.	**Consistent.** The development would avoid sensitive biological resources. The design would also build the school along the existing topography.
Locate the high school campus on a site that is large enough to accommodate anticipated growth in the BUSD high school population and typical high school facilities and programs (25-60 acres) pursuant to the California Department of Education school site selection criteria, proximate to available utilities, outside of a flood plain or flood way, and containing efficient ingress and egress to minimize traffic queuing and maximize first responder access.	The proposed project has been designed to meet California department of Education Requirements.	**Inconsisten**t. Would not implement project objective.	**Inconsistent**. Would not support project objective.	**Consistent**. Phase 1 only alternative would support the project objective.
Minimal impact to regional circulation system.	The proposed project would provide a new high school within a centrally located area in BUSD and would allow for bussing of students.	**Semi-Consistent.** No development would occur. Therefore, no impacts to the circulation system would occur. However, future growth would not be accommodated.	**Inconsistent.** Development could result in increased traffic on local roadways.	**Consistent.** The development would provide a centrally located high school and would reduce the number of trips.

5.9 Environmental Superior Alternative

An EIR must identify the environmentally superior alternative. The No Project Alternative would reduce or eliminate all proposed project impacts, including significant and unavoidable impacts of the proposed project. However, the No Project Alternative does not meet any of the project objectives. In addition, CEQA Guidelines (Section 15126.6[c]) requires that, if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

As such, Alternative 3 would be the superior alternative as it would result in the greatest reduction in air quality, biological, greenhouse gas, noise, and traffic impacts, when compared to the proposed project and the other alternatives. Alternative 3, the Phase 1 Only Alternative, would be the environmentally superior alternative.

5.9.1 References

CDE School Site Selection and Approval Guide - https://www.cde.ca.gov/ls/fa/sf/schoolsiteguide.asp

CDE Guide to School Site Analysis and Development - https://www.cde.ca.gov/ls/fa/sf/documents/schoolsiteanalysis2000.pdf

CHAPTER 6
Report Preparation

Lead Agency

Bonsall Unified School District
31505 Old River Road, Bonsall, CA 92003

David Medcalf, Director of Facilities, Maintenance and Transportation

EIR Consultant

ESA
550 West C Street, Suite 750, San Diego, CA 92101

Eric Ruby, Principal-in-Charge
Jason Ricks, Project Director
Arabesque Said-Abdelwahed, Project Manager

Analysts:

Olivia Chan
Jack Hutchison
Kyle Kim
Tommy Molioo
Michael Vader
Paige Anderson
Katelyn Matroni
Jason Nielsen
Jessie Lee
Denise Kaneshiro

Hernandez Environmental Services

Shawn Hernandez

Kunzman Associates

Giancarlo Ganddinni, P.E.

Leighton Consulting Group

Kenneth Cox, GE

Padre Associates, Inc.

Matt Miller

Appendix A
Notice of Preparation

ESA

BONSALL
UNIFIED SCHOOL DISTRICT

31505 Old River Road • Bonsall, CA 92003
760.631.5200 • Fax 760.941.4409
www.bonsallusd.com

Governing Board
Timothy Coen, M.D.
Erin English, Ed.D.
Richard Olson
Lou Riddle
Sylvia Tucker, Ed.D.
Superintendent
Justin Cunningham, Ed.D.
Assistant Superintendent
William Pickering II

Notice of Preparation

To: Interested Parties

From: Bonsall Unified School District
Facilities, Maintenance and Transportation
31505 Old River Road
Bonsall, California 92003

Subject: Notice of Preparation of a Draft Environmental Impact Report and Notice of Scoping Meeting

Date: May 25, 2017

Project Title: Bonsall Unified School District - Bonsall High School Project

Bonsall Unified School District (BUSD) is the lead agency under the California Environmental Quality Act (CEQA) in the preparation of an Environmental Impact Report (EIR) for the project described below. The District requests your comments and concerns regarding the environmental issues associated with the proposed project.

The District requests input from your agency as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR prepared by BUSD when considering your permit or other approval for the project.

Project Location: The 49.8-acre project site is located within the unincorporated community of Fallbrook in the north-central portion of San Diego County (**Figure 1**). The Project is located within Assessor Parcel Number (APN) 124-340-3400 approximately 0.30-mile north of the intersection of State Route 76 (SR 76) and Gird Road (**Figure 2**). Specifically, the Project is located in an unsectioned portion of Township 10 South, Range 3 West on the Bonsall USGS 7.5-minute topographic quadrangle.

Project Description: The proposed project is the construction of a new high school for grades 9-12 with a maximum enrollment of 1,500 students, 60 teachers, aides, administrators, and other school personnel. The project would provide approximately 150,500 square feet (sf) of building floor area and approximately 40 acres of recreational fields, parking and landscape/hardscape (**Figure 3)**. **Table 1**

provides a breakdown of the project components. The proposed buildings include permanent classrooms, administrative offices, media centers, and gymnasium. The project would also include recreational fields and facilities for community use after school hours, weekends, and holidays. The gymnasium and other school buildings would be available for community use after school hours, weekends, and holidays.

TABLE 1

PROJECT COMPONENTS

Building/Facility	Number of Floors	Ground Area (SF/Acres)	Total Building SF
Administration/Student Support	1	5,500 sf	5,500 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building & Learning Commons	2	16,200 sf	32,400 sf
Classroom Building – Art, Music, Drama, Food Service	1	17,800 sf	17,800 sf
Gymnasium/Lockers/Support	1	30,000 sf	30,000 sf
Total – Buildings		**101,900 sf**	**150,500 sf**
Recreational Fields/Track/Field Building	-	23.5 acres / 1,023,6600 sf	-
Parking Lot/Street/Hardscape/Landscape	-	15.0 acres / 653,400 sf	-
Bus Parking	-	1.5 acres / 63,340 sf	-
Total Non-Buildings	**-**	**37.6 acres / 1,062,500**	**-**
Total – Disturbed Area	**-**	**39.5 acres**	**-**
Total – Undisturbed Area	**-**	**10.5 acres**	**-**

SOURCE: BakerNowicki design studio, 2017

The project includes an onsite parking area for staff and student parking with a parking area for up to 12 school buses contiguous to staff student parking areas. Buses routinely parked on campus would be those that currently serve the Bonsall High School demographic area. Public transportation service for students attending the new high school is not anticipated.

The school would encompass approximately 39.5 net usable acres of a 50-acre (gross) site which is consistent with the California Department of Education Standards.

The project includes low horizon security lighting around the campus and parking areas, and nighttime lighting of the hard-court surfaces.

Probable Environmental Effects: An EIR will be prepared to evaluate the proposed project's potential impacts on the environment. The EIR will include a comprehensive analysis of all required issues and is anticipated to include chapters on aesthetics, agriculture, air quality, biological resources, cultural

resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, population and housing, public services, recreation, transportation and traffic, tribal cultural resources, and utilities/service systems.

Public Review Period: The District has made this Notice of Preparation (NOP) available for public review and comment. **The comment period for the NOP begins May 26, 2017 and ends June 26, 2017.** Due to the time limits mandated by State law, your response must be sent at the earliest possible time but not later than 30 days after receipt of this notice.

Responses and Comments: Please send your response to the Bonsall Unified School District, Facilities, Maintenance and Transportation, Attn: David Medcalf, 31505 Old River Road, Bonsall, California 92003. You may also email your response to david.medcalf@bonsallusd.com. Please provide the name of a contact person at your agency.

A scoping meeting will be held on Wednesday June 14th, 2017, at 6:00 p.m. in the Community Center (31505 Old River Road, Bonsall, California 92003). The scoping meeting will be held to present project details and to receive comments on the scope of the proposed project's EIR. You are welcome to attend and present environmental information that you believe should be addressed in the EIR.

Date: 5/25/2017 Signature: _____

David Medcalf, Director of Facilities, Maintenance and Transportation

SOURCE: ESRI

Bonsall High School Project. 160855

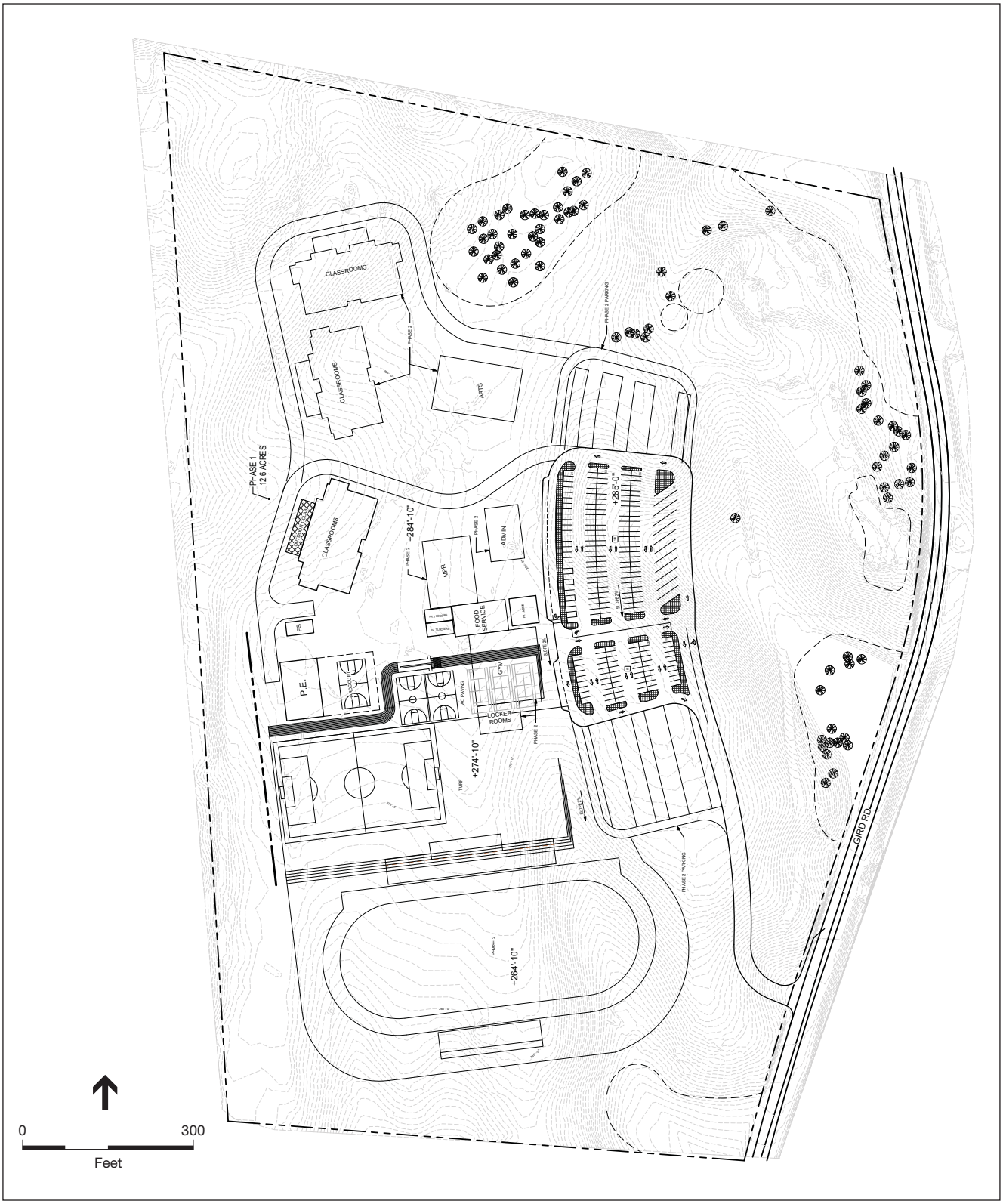
Figure 1

Regional Location

Source: ESRI

Bonsall High School Project. 160855

Figure 2
Project Site



SOURCE: BakerNowicki design studio, 2017

Bonsall High School Project

Figure 3
Site Plan

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

Notice of Preparation

May 26, 2017

To: Reviewing Agencies

Re: Bonsall High School Project
SCH# 2017051078

Attached for your review and comment is the Notice of Preparation (NOP) for the Bonsall High School Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

David Medcalf
Bonsall Union School District
31505 Old River Road
Bonsall, CA 92003

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2017051078
Project Title Bonsall High School Project
Lead Agency Bonsall Union School District

Type NOP Notice of Preparation

Description The proposed project is the construction of a new high school for grades 9-12 with a maximum enrollment of 1,500 students, 60 teachers, aides, administrators, and other school personnel. The project would provide approx. 150,500 sq. ft. of building floor area and approx. 40 acres of recreational fields, parking and landscape/hardscape provides a breakdown of the project components. The proposed buildings include permanent classrooms, administrative offices, media centers, and gymnasium. the project would also include recreational fields and facilities for community use after school hours, weekends, and holidays. The gymnasium and other school buildings would be available for community use after school hours.

Lead Agency Contact

Name David Medcalf
Agency Bonsall Union School District
Phone 760-631-5200 **Fax**
email
Address 31505 Old River Road
City Bonsall **State** CA **Zip** 92003

Project Location

County San Diego
City
Region
Cross Streets SR 76 and Gird Road
Lat / Long 33° 19' 18.49" N / 117° 11' 45.37" W
Parcel No. 124-340-3400
Township 10S **Range** 3W **Section** **Base** SBBM

Proximity to:

Highways 76
Airports
Railways
Waterways San Luis Rey River
Schools Bonsall HS
Land Use Currently undeveloped. Zoning: agriculture (A170); Land Use Designation: Public/Semi-Public Facilities

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Geologic/Seismic; Noise; Population/Housing Balance; Recreation/Parks; Schools/Universities; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Water Quality; Landuse; Cumulative Effects

Reviewing Agencies Resources Agency; Department of Conservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 5; California Department of Education; Native American Heritage Commission; California Highway Patrol; Caltrans, District 11; State Water Resources Control Board, Division of Drinking Water, District 14; Department of Toxic Substances Control; Regional Water Quality Control Board, Region 9

Date Received 05/26/2017 **Start of Review** 05/26/2017 **End of Review** 06/26/2017

Note: Blanks in data fields result from insufficient information provided by lead agency.

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2017051078

Project Title: Bonsall High School Project

Lead Agency: Bonsall Unified School District | Contact Person: David Medcalf

Mailing Address: 31505 Old River Road | Phone: 760.631.5200

City: Bonsall | Zip: 92003 | County: San Diego

Project Location: County: San Diego | City/Nearest Community: Bonsall

Cross Streets: State Route 76 and Gird Road | Zip Code:

Longitude/Latitude (degrees, minutes and seconds): 33 ° 19 ′ 18.40″ N / 117 ° 11 ′ 45.37″ W | Total Acres: 50

Assessor's Parcel No.: 124-340-3400 | Section: n/a | Twp.: 10 South | Range: 3 West | Base: SBBM

Within 2 Miles: State Hwy #: 76 | Waterways: San Luis Rey River

Airports: | Railways: | Schools: Bonsall High School

Document Type:

CEQA: ☒ NOP ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec Other:

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other:

Governor's Office of Planning & Research

MAY 26 2017

STATE CLEARINGHOUSE

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☒ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other:

Development Type:

☐ Residential: Units Acres
☐ Office: Sq.ft. Acres Employees
☐ Commercial: Sq.ft. Acres Employees
☐ Industrial: Sq.ft. Acres Employees
☒ Educational: New High School
☐ Recreational:
☐ Water Facilities: Type MGD
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type MW
☐ Waste Treatment: Type MGD
☐ Hazardous Waste: Type
☐ Other:

Project Issues Discussed in Document:

☒ Aesthetic/Visual ☒ Agricultural Land ☒ Air Quality ☒ Archeological/Historical ☐ Biological Resources ☐ Coastal Zone ☐ Drainage/Absorption ☐ Economic/Jobs
☐ Fiscal ☐ Flood Plain/Flooding ☐ Forest Land/Fire Hazard ☒ Geologic/Seismic ☐ Minerals ☒ Noise ☒ Population/Housing Balance ☐ Public Services/Facilities
☒ Recreation/Parks ☒ Schools/Universities ☐ Septic Systems ☒ Sewer Capacity ☒ Soil Erosion/Compaction/Grading ☒ Solid Waste ☒ Toxic/Hazardous ☒ Traffic/Circulation
☐ Vegetation ☒ Water Quality ☐ Water Supply/Groundwater ☐ Wetland/Riparian ☐ Growth Inducement ☒ Land Use ☒ Cumulative Effects ☐ Other:

Present Land Use/Zoning/General Plan Designation:

Currently undeveloped. Zoning: Agriculture (A70); Land Use Designation: Public/Semi-Public Facilities

Project Description: *(please use a separate page if necessary)*

See attached NOP

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

NOP Distribution List

43

County: San Diego

SCH# 2017051078

Resources Agency

- [ ] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  Denise Peterson
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [ ] **Colorado River Board**
  Lisa Johansen
- [x] **Dept. of Conservation**
  Crina Chan
- [ ] **Cal Fire**
  Dan Foster
- [ ] **Central Valley Flood Protection Board**
  James Herota
- [ ] **Office of Historic Preservation**
  Ron Parsons
- [ ] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve Goldbeck
- [x] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

Fish and Game

- [ ] **Depart. of Fish & Wildlife**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Wildlife Region 1**
  Curt Babcock
- [ ] **Fish & Wildlife Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Wildlife Region 2**
  Jeff Drongesen
- [ ] **Fish & Wildlife Region 3**
  Craig Weightman
- [ ] **Fish & Wildlife Region 4**
  Julie Vance
- [x] **Fish & Wildlife Region 5**
  Leslie Newton-Reed
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6**
  Tiffany Ellis
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6 I/M**
  Heidi Calvert
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Wildlife M**
  William Paznokas
  Marine Region

Other Departments

- [x] **California Department of Education**
  Lesley Taylor
- [ ] **OES (Office of Emergency Services)**
  Monique Wilber
- [ ] **Food & Agriculture**
  Sandra Schubert
  Dept. of Food and Agriculture
- [ ] **Dept. of General Services**
  Cathy Buck
  Environmental Services Section
- [ ] **Housing & Comm. Dev.**
  CEQA Coordinator
  Housing Policy Division

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Erik Vink
- [ ] **Delta Stewardship Council**
  Kevan Samsam
- [ ] **California Energy Commission**
  Eric Knight
- [x] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Supervisor
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [ ] **State Lands Commission**
  Jennifer Deleong
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Cal State Transportation Agency CalSTA

- [ ] **Caltrans - Division of Aeronautics**
  Philip Crimmins
- [ ] **Caltrans – Planning**
  HQ LD-IGR
  Christian Bushong
- [x] **California Highway Patrol**
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Eric Federicks – South
  Susan Zanchi - North
- [ ] **Caltrans, District 4**
  Patricia Maurice
- [ ] **Caltrans, District 5**
  Larry Newland
- [ ] **Caltrans, District 6**
  Michael Navarro
- [ ] **Caltrans, District 7**
  Dianna Watson
- [ ] **Caltrans, District 8**
  Mark Roberts
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [x] **Caltrans, District 11**
  Jacob Armstrong
- [ ] **Caltrans, District 12**
  Maureen El Harake

Cal EPA

Air Resources Board

- [ ] **Airport & Freight**
  Jack Wursten
  - [ ] **Transportation Projects**
    Nesamani Kalandiyur
  - [ ] **Industrial/Energy Projects**
    Mike Tollstrup
- [ ] **California Department of Resources, Recycling & Recovery**
  Sue O'Leary
- [ ] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- [ ] **State Water Resources Control Board**
  Cindy Forbes – Asst Deputy
  Division of Drinking Water
- [x] **State Water Resources Control Board**
  Div. Drinking Water # 14
- [ ] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Phil Crader
  Division of Water Rights
- [x] **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [x] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____

_____

_____

- [ ] _____
  Conservancy

Last Updated 4/28/17

U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008
760-431-9440
FAX 760-431-9624

California Department of Fish and Wildlife
South Coast Region
3883 Ruffin Road
San Diego, California 92123
858-467-4201
FAX 858-467-4299

In Reply Refer To:
FWS/CDFW-SDG-17B0409-17CPA0142

June 26, 2017
Sent by Email

David Medcalf
Director, Facilities, Maintenance, and Transportation
Bonsall Unified School District
31505 Old River Road
Bonsall, California 92003

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Bonsall High School Project, San Diego County, California

Dear Mr. Medcalf:

The U.S. Fish and Wildlife Service (Service) and the California Department of Fish and Wildlife (Department), hereafter collectively referred to as the Wildlife Agencies, have reviewed the above-referenced Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) dated May 25, 2017. The Wildlife Agencies have identified potential effects of this project on wildlife and sensitive habitats. The comments provided are based on the information provided in the NOP, our knowledge of sensitive and declining vegetation communities in San Diego County, and our participation in regional conservation planning efforts.

The primary concern and mandate of the Service is the protection of fish and wildlife resources and their habitats. The Service has the legal responsibility for the welfare of migratory birds, anadromous fish, and threatened and endangered animals and plants occurring in the United States. The Service also is responsible for administering the Federal Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq*.), including habitat conservation plans (HCP) developed under section 10 of the Act. The Department is a Trustee Agency and a Responsible Agency pursuant to the California Environmental Quality Act (CEQA; §§15386 and 15381, respectively) and is responsible for ensuring appropriate conservation of the State's biological resources, including rare, threatened, and endangered plant and animal species pursuant to the California Endangered Species Act (CESA; Fish and Game Code §2050 *et seq*.) and other sections of the Fish and Game Code. The Department also administers the Natural Community Conservation Planning (NCCP) program (Fish and Game Code 2800, *et seq*.).

The 49.8-acre project site is located approximately 0.30 mile north of the intersection of State Route 76 and Gird Road within the unincorporated community of Bonsall in San Diego County. The project proposes to impact approximately 39.5 acres in order to construct, maintain, and operate a new high school. The proposed buildings include permanent classrooms, administrative offices, media centers, and a gymnasium. The proposed project also includes recreational fields

and an on-site parking area. The gymnasium, recreational fields, and other facilities would be available for community use on weekends, holidays, and after school hours. The project also includes low horizon security lighting around the campus and parking areas, as well as nighttime lighting of the hard-court surfaces.

We offer our comments and recommendations in the appendix to assist the Bonsall Unified School District (District) in avoiding, minimizing, and adequately mitigating project-related impacts to biological resources. In summary, our comments address the following issues: (1) updated protocol-level species surveys for listed species with potential to occur in the project area; (2) compliance with CESA and the Act; (3) potential impacts to sensitive biological resources, including wetland and riparian habitats; (4) potential impacts to natural habitat from fuel modification and any necessary off-site improvements (e.g. roads); (5) the use of native plants in landscaped areas adjacent to native habitats; and (6) general information to be included in the DEIR.

We appreciate the opportunity to comment on the NOP and request a copy of the DEIR upon its release. If you have questions regarding this letter, please contact Eric Hollenbeck of the Department at 858-467-2720 or Emily Cate of the Service at 760-431-9440, extension 252.

Sincerely,

for Karen A. Goebel
Assistant Field Supervisor
U.S. Fish and Wildlife Service

Gail K. Sevrens
Environmental Program Manager
California Department of Fish and Wildlife

Appendix

cc:
Office of Planning and Research, State Clearinghouse, Sacramento

APPENDIX
Wildlife Agencies' comments and recommendations for preparation of a Draft Environmental Impact Report for the Bonsall High School Project, San Diego County, California

Specific Comments

1. The habitat communities found on the project site have the potential to support a number of federally and/or state listed species, including the federally endangered arroyo toad (a. southwestern t.) [*Anaxyrus californicus* (*Bufo microscaphus c.*); arroyo toad], the federally and state endangered least Bell's vireo (*Vireo bellii pusillus*; vireo), the federally and state endangered southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher), the federally threatened and state endangered western yellow-billed cuckoo (*Coccyzus americanus*; cuckoo), and the federally endangered San Diego ambrosia (*Ambrosia pumila*). To guide project planning to avoid/minimize impacts to listed species, we recommend that protocol level surveys be conducted for any listed or rare species with the potential to occur within the project site, including all those that meet the CEQA definition (see CEQA Guidelines, § 15380). Surveys should be performed no more than 1 year prior to an application for a permit from the Wildlife Agencies, and the DEIR should include the survey results.

   Should a listed species be detected within the project site, we recommend that the District coordinate with our respective offices (i.e., the Service for federally listed species and the Department for state listed species) to assess if the project has the potential to result in "take" of that species.

   Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of an incidental take permit (ITP) unless the project CEQA document addresses all project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of an ITP. For these reasons, biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.

2. The project's southern boundary is located in close proximity (less than 1 mile) to the main stem of the San Luis Rey River. The San Luis Rey River supports populations of numerous federally and/or state listed species, such as arroyo toad, vireo, flycatcher, and cuckoo. The San Luis Rey River watershed is also a focus of restoration for the federally listed southern California steelhead trout (*Oncorhynchus mykiss*; steelhead).[1] Therefore, the DEIR should identify and analyze any potential impacts to the San Luis Rey River including potential modification of run-off patterns and discharge of pollutants that could affect listed species and their habitats.

[1] Southwest Regional Office. January 2012. Southern California Steelhead Recovery Plan. U.S. Department of Commerce, National Marine Fisheries Service.

3. The Wildlife Agencies have responsibility for wetland and riparian habitats. Therefore, we strongly discourage any development or conversion which would result in a reduction of wetland acreage or wetland habitat values, unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. Development and conversion include, but are not limited to, conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether intermittent or perennial, should be avoided and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations. For unavoidable impacts, we recommend that the DEIR include mitigation measures to compensate for impacts to wetland and riparian habitats. In addition, the Department has the following comments regarding wetland habitats on the proposed project site:

   a. The project area supports aquatic, riparian, and wetland habitats; therefore, a jurisdictional delineation of the creeks and their associated riparian habitats should be included in the DEIR. The delineation should be conducted pursuant to the Service wetland definition adopted by the Department.[2] Please note that some wetland and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers.

   b. The DEIR should include a discussion on maintaining connectivity to adjacent lands through the preservation of any on-site riparian corridors.

   c. The Department has regulatory authority with regard to activities occurring in streams and/or lakes that could adversely affect any fish or wildlife resource. For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river, stream, or lake, or use material from a river, stream, or lake, the project applicant (or "entity") must provide written notification to the Department pursuant to section 1600 *et seq*. of the Fish and Game Code. Based on this notification and other information, the Department then determines whether a Lake and Streambed Alteration (LSA) Agreement is required. The Department's issuance of a LSA for a project that is subject to CEQA will require CEQA compliance actions by the Department as a responsible agency. The Department as a responsible agency under CEQA may consider the local jurisdiction's (lead agency) Negative Declaration or Environmental Impact Report for the project. To minimize additional requirements by the Department pursuant to Section 1600 *et seq*. and/or under CEQA, the document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the LSA.[3]

[2] Cowardin, Lewis M., *et al*. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.

[3] A notification package for a LSA may be obtained by accessing the Department's web site at www.wildlife.ca.gov/habcon/1600.

4. Because of the potential high fire danger associated with the project site, the project proponent should consult with the local fire district to get a definitive evaluation on the extent of fuel modification that will be required. Fuel modification impacts to natural habitats should be incorporated into the development footprint, considered as project impacts, and appropriate biological mitigation should be proposed. No fuel management should be incorporated into designated open space parcels.

5. The proposed project could result in increased traffic volumes on highways and roads providing access to the proposed project area. The DEIR should discuss the need for any road improvements that would be necessary to off-set increased traffic volumes resulting from the proposed project. Furthermore, the DEIR should identify any on- and/or off-site impacts to sensitive species or habitats that would result from any proposed road improvements associated with the project.

6. Appropriate native plants should be used to the greatest extent feasible in landscaped areas adjacent to and/or near mitigation/open space areas and/or wetland/riparian areas. The applicant should not plant, seed, or otherwise introduce invasive exotic plant species to landscaped areas adjacent and/or near native habitat areas. Exotic plant species not to be used include those species listed on the California Invasive Plant Council's (Cal-IPC) Invasive Plant Inventory (http://www.cal-ipc.org). This list includes such species as: pepper trees, pampas grass, fountain grass, ice plant, myoporum, black locust, capeweed, tree of heaven, periwinkle, sweet alyssum, English ivy, French broom, Scotch broom, and Spanish broom. In addition, landscaping adjacent to native habitat areas should not use plants that require intensive irrigation, fertilizers, or pesticides. Water runoff from landscaped areas should be directed away from mitigation/open space and/or wetland/riparian areas and contained and/or treated within the development footprint.

General Comments

To enable the Wildlife Agencies to adequately review and comment on the proposed project from the standpoint of the protection of plants, fish, and wildlife, we recommend the following information be included in the DEIR:

1. A complete discussion of the purpose and need for, and description of, the proposed project, including all ancillary facilities, staging areas, and access routes to the construction and staging areas.

2. Analyses of a range of feasible alternatives to ensure that alternatives to the proposed project are fully considered and evaluated. The analyses must include alternatives that avoid or otherwise minimize impacts to sensitive biological resources, particularly wetlands. Specific alternative locations should be evaluated in areas with lower resource sensitivity, where appropriate.

3. A complete list and assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying federally and/or state listed threatened, endangered, or proposed candidate species, and any locally unique species and sensitive habitats. Specifically, the DEIR should include:

    a. Discussions regarding the regional setting with special emphasis on resources that are rare or unique to the region that would be affected by the project. This discussion is critical to an assessment of environmental impacts.

    b. A current inventory of the biological resources associated with each habitat type on site and within the area of impact.

    c. A thorough assessment of rare plants and rare natural communities.

    d. A current inventory of rare, threatened, and endangered species on site and within the area of impact.

    e. Discussions regarding seasonal variations in use by sensitive species of the project site as well as the area of impact on those species, using acceptable species-specific survey procedures as determined through consultation with the Wildlife Agencies. Focused species-specific surveys, conducted in conformance with established protocols at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required.

4. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources. All facets of the project should be included in this assessment. Specifically, the DEIR should provide:

    a. Specific acreage and descriptions of the types of wetlands, scrub, and other sensitive habitats that will or may be affected by the proposed project or project alternatives. Maps and tables should be used to summarize such information.

    b. Detailed discussions, including both qualitative and quantitative analyses, of the potentially affected listed and sensitive species (fish, wildlife, plants), and their habitats on the proposed project site, area of impact, and alternative sites, including information pertaining to their local status and distribution. The anticipated or real impacts of the project on these species and habitats should be fully addressed.

    c. Discussions regarding indirect project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any proposed NCCP protected lands.

        i) Impacts to wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated.

ii) Discussions of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage. The latter subject should address: project-related changes on drainage patterns on and downstream of the project site; the volume, velocity, and frequency of existing and post-project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-project fate of runoff from the project site.

iii) If applicable, a discussion of the effects of any project-related dewatering or ground-water extraction activities to the water table and the potential resulting impacts on the wetland/riparian habitat, if any, supported by the surface and groundwater.

d. Discussions regarding possible conflicts resulting from wildlife-human interactions at the interface between the development project and natural habitats. The zoning of areas for development projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions.

5. A thorough discussion of mitigation measures for adverse project-related impacts on sensitive plants, animals, and habitats. Specifically, the DEIR should include/address:

a. Where avoidance is infeasible, mitigation measures that emphasize minimization of project impacts. For unavoidable impacts, onsite habitat restoration or enhancement should be discussed in detail. If onsite mitigation is not feasible or would not be biologically viable (e.g., it would not adequately mitigate the loss of biological functions and values), offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

b. Mitigation measures to alleviate indirect project-related impacts on biological resources, including measures to minimize changes in the hydrologic regimes on site, and means to convey runoff without damaging biological resources, including the morphology of onsite and downstream habitats.

c. Where proposed grading or clearing is within 100 feet of proposed biological open space, or otherwise preserved sensitive habitats, a requirement for temporary fencing. Fencing should be placed on the impact side and should result in no vegetation loss within open space. All temporary fencing should be removed only after the conclusion of all grading, clearing, and construction activities.

d. A requirement that a Wildlife Agency-approved biological monitor to be present during initial clearing, grading, and construction in sensitive habitat areas and/or in the vicinity of biological open space areas to ensure that conservation measures associated with resource agency permits and construction documents are performed. The biological monitor should have the authority, and responsibility, to halt construction to prevent or avoid take of any listed species and/or to ensure

compliance with all avoidance, minimization, and mitigation measures. Any unauthorized impacts or actions not in compliance with the permits and construction documents should be immediately brought to the attention of the District and the Wildlife Agencies.

e. Plans for restoration and revegetation, to be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria (e.g., percent cover of native and non-native species; species richness); (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

f. Measures to protect, in perpetuity, the targeted habitat values of proposed preservation and/or restoration areas from direct and indirect negative impacts. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Permanent fencing should be installed between the impact area and biological open space and be designed to minimize intrusion into the sensitive habitats from humans and domestic animals. There should be no gates that would allow access between the development and biological open space. Additional issues that should be addressed include proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, etc.

g. Development and implementation of a management and monitoring plan (MMP), including a funding commitment, for any on and/or offsite biological open space easements, if applicable. An appropriate natural lands management organization, subject to approval by the District and Wildlife Agencies, should be identified. The MMP should outline biological resources on the site, provide for monitoring of biological resources, address potential impacts to biological resources, and identify actions to be taken to eliminate or minimize those impacts. A Property Analysis Record (PAR) or similar analysis should be completed to determine the amount of funding needed for the perpetual management, maintenance, and monitoring of the biological conservation easement areas by the natural lands management organization. It should be demonstrated that the proposed funding mechanism would ensure that adequate funds would be available on an annual basis to implement the MMP. The natural lands management organization should submit a draft MMP, PAR results, and proposed funding mechanism to the District and Wildlife Agencies for review and approval prior to initiating construction activities; the resulting final plan should be submitted to the District

and Wildlife Agencies and the funds for implementing the MMP transferred within 90 days of receiving approval of the draft plan.

h. To avoid impacts to nesting birds, the DEIR should require that all clearing and grubbing occur outside the avian breeding season. The general breeding season for nesting birds occurs approximately February 15 through September 15; however, raptors may begin breeding as early as January 1. If project construction is necessary during the avian breeding season, a qualified biologist should conduct a survey for nesting birds within 3 days prior to the work in the area to ensure no nesting birds in the project area would be impacted by the project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer shall be a minimum width of 300 feet (500 feet for raptors), shall be delineated by temporary fencing, and shall remain in effect as long as construction is occurring or until the nest is no longer active. No project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be affected by the construction.

STATE OF CALIFORNIA
NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone (916) 373-3710

June 1, 2017

David Medcalf
Bonsall Union School District
31505 Old River Road
Bonsall, CA 92003

Sent via e-mail: david.medcalf@bonsallusd.com

RE: SCH# 2017051078; Bonsall High School Project, City of Bonsall; San Diego County, California

Dear Mr. Medcalf:

The Native American Heritage Commission has received the Notice of Preparation (NOP) for Draft Environmental Impact Report for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd. (a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a **separate category of cultural resources**, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment (Pub. Resources Code § 21084.2). Please reference California Natural Resources Agency (2016) "Final Text for tribal cultural resources update to Appendix G: Environmental Checklist Form," http://resources.ca.gov/ceqa/docs/ab52/Clean-final-AB-52-App-G-text-Submitted.pdf. Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends **lead agencies consult with all California Native American tribes** that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a **lead agency** shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
    a. A brief description of the project.
    b. The lead agency contact information.
    c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).
    d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A **lead agency** shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
    a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
    a. Alternatives to the project.
    b. Recommended mitigation measures.
    c. Significant effects. (Pub. Resources Code § 21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
    a. Type of environmental review necessary.
    b. Significance of the tribal cultural resources.
    c. Significance of the project's impacts on tribal cultural resources.
    d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
    a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
    b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
    a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
    b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
        i. Planning and construction to avoid the resources and protect the cultural and natural context.
        ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
        i. Protecting the cultural character and integrity of the resource.
        ii. Protecting the traditional use of the resource.
        iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)).

    This process should be documented in the Cultural Resources section of your environmental document.

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires **local governments** to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at:
https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at:
http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have been already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.

b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

Please contact me if you need any additional information at gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

cc: State Clearinghouse

DEPARTMENT OF TRANSPORTATION
DISTRICT 11
4050 TAYLOR STREET, M.S. 240
SAN DIEGO, CA 92110
PHONE (619) 688-6960
FAX (619) 688-4299
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

June 2, 2017

11-SD-76
PM 14.7
NOP SCH 2017051078

Mr. David Medcalf
Bonsall Union School District
31505 Old River Road
Bonsall, CA 92003

Dear Mr. Medcalf:

The California Department of Transportation (Caltrans) appreciates the opportunity to review the Notice of preparation (NOP) for the Bonsall High School project, which planned location will be west of Gird Road and approximately 1,500 feet north of State Route 76 (SR-76). Caltrans has the following comments:

A traffic impact study (TIS) is necessary to determine this proposed project's near-term and long-term impacts to the State facilities – existing and proposed – and to propose appropriate mitigation measures. The study should use as a guideline the *Caltrans Guide for the Preparation of Traffic Impact Studies*. Minimum contents of the traffic impact study are listed in Appendix "A" of the TIS guide. www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tis**guide**.pdf

The data used in the TIS should not be more than 2 years old.

Caltrans endeavors that any direct and cumulative impacts to the State Highway System be eliminated or reduced to a level of insignificance pursuant to the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) standards.

Mitigation measures to State facilities should be included in TIS. Mitigation identified in the traffic study, subsequent environmental documents, and mitigation monitoring reports, should be coordinated with Caltrans to identify and implement the appropriate mitigation. This includes the actual implementation and collection of any "fair share" monies, as well as the appropriate timing of the mitigation. Mitigation improvements should be compatible with Caltrans concepts.

If you have any questions or comments, please contact Trent Clark of the Development Review branch at (619) 688-3140.

Sincerely,

MAURICE EATON, Branch Chief
Development Review Branch

MARK WARDLAW
DIRECTOR

County of San Diego

PLANNING & DEVELOPMENT SERVICES
5510 OVERLAND AVENUE, SUITE 310, SAN DIEGO, CA 92123
(858) 694-2962 • Fax (858) 694-2555
www.sdcounty.ca.gov/pds

June 27, 2017

David Medcalf
Director of Facilities, Maintenance and Transportation
Bonsall Unified School District
31505 Old River Road
Bonsall, California 92003

Via e-mail: david.medcalf@bonsallusd.com

NOTICE OF PREPARATION FOR A DRAFT ENVIRONMENTAL IMPACT REPORT (PROJECT), BONSALL UNIFIED SCHOOL DISTRICT (DISTRICT)

Mr. Medcalf,

The County of San Diego (County) has reviewed the Bonsall Unified School District's Notice of Preparation of a Draft Environmental Impact Report (DEIR) for the Bonsall High School (Project). The County appreciates the opportunity to review this project, and offers the following comments for your consideration.

GENERAL PLAN & ZONING

The project site has a General Plan designation of Public/Semi-Public and is zoned A-70 (Limited Agricultural Use). Please consider these designations when evaluating the Project for consistency with adopted plans, policies, and regulations.

WATERSHED

1. The project could potentially generate stormwater impacts to adjacent private parcels, roadways, and municipal storm sewer system (MS4) located in the unincorporated county. Therefore, the project must consider the following items:

    a. Compliance with the San Diego Municipal Storm Water Permit Order No. R9-2013-0001, (as amended by Order Nos. R9-2015-0001 and R9-2015-0100). The project must consider implementing permanent Site Design, Source Control, Pollutant Control, and Hydromodification Management in accordance with the County's BMP Design Manual.

    b. Implementation of Construction BMPs and associated plans for conformance with the County of San Diego's Grading Ordinance, Watershed Protection Ordinance and State of California's Construction General Permit.

    c. The proposed project is located within the San Luis Rey River watershed. Within this watershed, there is one Total Maximum Daily Load (TMDL) for bacteria that has been adopted regionally by the San Diego Regional Water Quality Control Board. It is called

the Revised TMDLs for Indicator Bacteria, Project 1 - Twenty Beaches and Creeks in the San Diego Region. It includes load reduction requirements for the Lower San Luis Rey River hydrologic area (from the Monserrate Narrows west to the Pacific Ocean). The EIR should evaluate the proposed project's potential to impact water quality, and specifically evaluate any potential for runoff to contribute bacteria into the County's municipal storm sewer system (MS4) and downstream receiving waters. The County (in addition to the City of Oceanside, City of Vista, and Caltrans) has developed a Water Quality Improvement Plan (WQIP) for the watershed management area as required by the San Diego Municipal Storm Water Permit Order No. R9-2013-0001, (as amended by Order Nos. R9-2015-0001 and R9-2015-0100). The WQIP identifies priority water quality conditions, establishes numeric goals for bacteria in the watershed, and identifies potential sources and implementation strategies to achieve the numeric goals. This plan was developed through a public process and provides an evaluation of current water quality conditions that can be used as a tool for assessing water quality impacts. Information on the WQIP effort can be found at: http://www.projectcleanwater.org/san-luis-rey-water-quality-improvement-plan.

TRANSPORTATION/TRAFFIC

1. A fully detailed transportation impact study (TIS) should be prepared analyzing the proposed project's impacts to the County and Caltrans transportation system.

2. The proposed project fronts on Gird Road, a County Mobility Element Road with an ultimate classification of 2.2E with Bike Lanes. The project should construct frontage improvements to Gird Road to full public road standards.

3. The proposed project site plan appears to show only one driveway toward the southern boundary. The project should also include a second driveway. The main driveway and/or the secondary driveway location should be considered across from an existing road (e.g. Live Oak Creek Circle) to minimize conflicting offset intersections.

4. The site plan (Figure 3) and the TIS should describe all project driveways which will access Gird Road.

5. Intersection controls should be proposed where warranted. This should include an evaluation of roundabouts as an intersection control. Additional information can be found at: http://www.dot.ca.gov/trafficops/ice.html

6. The school driveway(s), internal traffic circulation, and parking lot should be designed appropriately to prevent excessive queuing of vehicles on Gird Road during peak school drop-off and pick-up times.

HAZARDOUS MATERIALS

1. All proposed storage or handling of hazardous materials, including swimming pool chemicals, compressed gases, fuel, maintenance chemicals, etc. requires submittal of a Hazardous Materials Questionnaire and completion of a Hazardous Materials Plan Check review prior to issuance of a certificate of occupancy by the Building Department.

2. Any proposed underground storage tanks containing hazardous substances must complete plan check with the Hazardous Materials Division prior to beginning construction/obtaining building permits.

3. Any proposed activities involving hazardous materials or generating hazardous/medical waste will require the operator to apply for a Unified Program Facility Permit through the California Environmental Reporting System (CERS) and comply with local, state and federal laws and regulations. For your reference, guidance and information for the Hazardous Materials Division requirements can be found at: http://www.sandiegocounty.gov/content/sdc/deh/hazmat/hmd_permits.html.

VECTOR CONTROL

1. The Vector Control Program (VCP) respectfully requests that the DEIR address potential impacts from possible mosquito breeding sources created by the project and that the project be designed and constructed in a manner to minimize those impacts. Specifically, ensure construction-related depressions created by grading activities, vehicle tires, and excavation does not result in depressions that will hold standing water.

2. In addition, ensure drains, BMPs, detention ponds, and other structures do not create a potential mosquito breeding source. Any area that is capable of accumulating and holding at least ½ inch of water for more than 96 hours can support mosquito breeding and development. Finally, if habitat remediation is required for the project, the design should be consistent with guidelines for preventing mosquito habitat creation.

3. Please note, the VCP has the authority pursuant to state law and County Code to order the abatement of any mosquito breeding that does occur either during construction or after the project is completed that is determined to be a vector breeding public nuisance. The VCP will exert that authority as necessary to protect public health if the project is not designed and constructed to prevent such breeding.

4. For your information, the County of San Diego Guidelines for Determining Significance for Vectors can be accessed at: http://www.sandiegocounty.gov/content/dam/sdc/pds/docs/vector_guidelines.pdf and the California Department of Public Health Best Management Practices for Mosquito Control in California is available at: http://www.cdph.ca.gov/HealthInfo/discond/Documents/BMPforMosquitoControl07-12.pdf

5. The VCP appreciates the opportunity to participate in the environmental review process for this project. If you have any questions regarding these comments, please contact Daniel Valdez at 858-688-3722 or by e-mail at Daniel.Valdez@sdcounty.ca.gov.

The County looks forward to receiving future documents and/or notices related to this project and providing additional assistance at your request. If you have any questions regarding these comments, please contact Timothy Vertino at 858-495-5468 or by e-mail at timothy.vertino@sdcounty.ca.gov.

Sincerely,

Joe Farace, Group Program Manager
Advance Planning Division
Planning & Development Services

E-mail cc:

Melanie Wilson, Policy Advisor, Board of Supervisors, District 5
Vincent Kattoula, CAO Staff Officer, LUEG
Nick Ortiz, Project Manager, PDS
Everett Hauser, Transportation Specialist, PDS
Richard Chin, Associate Transportation Planner, DPW
Jeff Kashak, Planner, DPW
Erin Jensen, Administrative Analyst, DEH

SAVEGIRDVALLEY.COM
SaveGirdValley@gmail.com

Date: June 26, 2017

RE: Bonsall Unified School District's (BUSD) Notice of Preparation of an Environment Impact Report (NOP of EIR), as required by the California Environmental Quality Act (CEQA), for a 1,500-student high school and performing arts center proposed for the five-times-rejected site in Fallbrook's Gird Valley.

To: BUSD Facilities Manager David Medcalf david.medcalf@bonsallusd.com; BUSD Board of Trustees (timothy.coen@bonsallusd.com, erin.english@bonsallusd.com, lou.riddle@bonsallusd.com, richard.olson@bonsallusd.com, sylvia.tucker@bonsallusd.com); SD County of Education (Bill DosSantos, billl.dossantos@sdcoe.net), State of California's Department of General Services' (DGS) Office of Public School Construction Division of the State Architect's Office (Ron LaPlante, ron.laplante@dgs.ca.gov); San Diego County Planning and Development Services, Dag Bunnemeyer, Dag.Bunnemeyer@sdcounty.ca.gov); County of San Diego Parks and Recreation (Mark Massen, Senior Park Project Manager, San Luis Rey River Valley Park, Mark.Massen@sdcounty.ca.gov); County Supervisor Bill Horn's Office (Melanie Wilson, Land Use Advisor, Melanie.Wilson@sdcounty.ca.gov); California Department of Fish and Wildlife (Warren Wong, warren.wong@wildlife.ca.gov; Marilyn Fluharty, marilyn.fluharty@wildlife.ca.gov); U.S. Fish and Wildlife Service (Emily Cate, emily_cate@fws.gov); US Army Corp of Engineers (Shanti Santulli, Shanti.A.Santulli@usace.army.mil), Citizens for Accountability in Taxation and Education/CATEgrp.com (categroup@roadrunner.com); Fallbrook Chamber of Commerce (Lila MacDonald, lila.macdonald@fallbrookchamberofcommerce.org); Fallbrook Community Planning Group (Jim Russell, russellfarms@roadrunner.com; Jerry Kalman, jlkalman@hotmail.com; Roy Moosa, roymoosa@att.net; Jack Wood, kkeyman@sbcglobal.net; Karel Hanson, karelhanson@gmail.com; Anne Burdick, avburdick@sbcglobal.net; Donna Gebhart, d_gebhart@pacbell.net); Fallbrook Land Conservancy (landcons@sbcglobal.net, Will Shakespeare, willrshakespeare@gmail.com; Wallace Tucker, wktucker@znet.com; Vince Ross, vinceross55@gmail.com), Monserate Winery (Jade and Julie Work, jwork@integritygolf.us), Center for Biological Diversity (John Buse, jbuse@biologicaldiversity.org, Ileene Anderson,

ianderson@biologicaldiversity.org); Conservation Land Group (Kevin Knowles, kevin@conserveland.com); Mitigation Land Specialists (Joanne Rodriguez, joanne@mitigationlandspecialists.com); The Wildlands San Luis Rey Wetland Mitigation Bank (Kathy Daniel, kdaniel@wildandsinc.com); North County Fire Protection District (Fire Chief Stephen Abbott, sabbott@ncfire.org), SaveGirdValley.com email list.

To Whom It May Concern:

On behalf of BUSD district residents and residents of Gird Valley in Fallbrook, SaveGirdValley.com is submitting the following comments on the Notice of Preparation of the Environmental Impact Report for BUSD's high school and performing arts center proposed for a site in Gird Valley.

These comments were assembled by our dedicated volunteers and we thank them for their input.

Please contact us any time and for more general information, please review the Key Documents and History sections of our website.

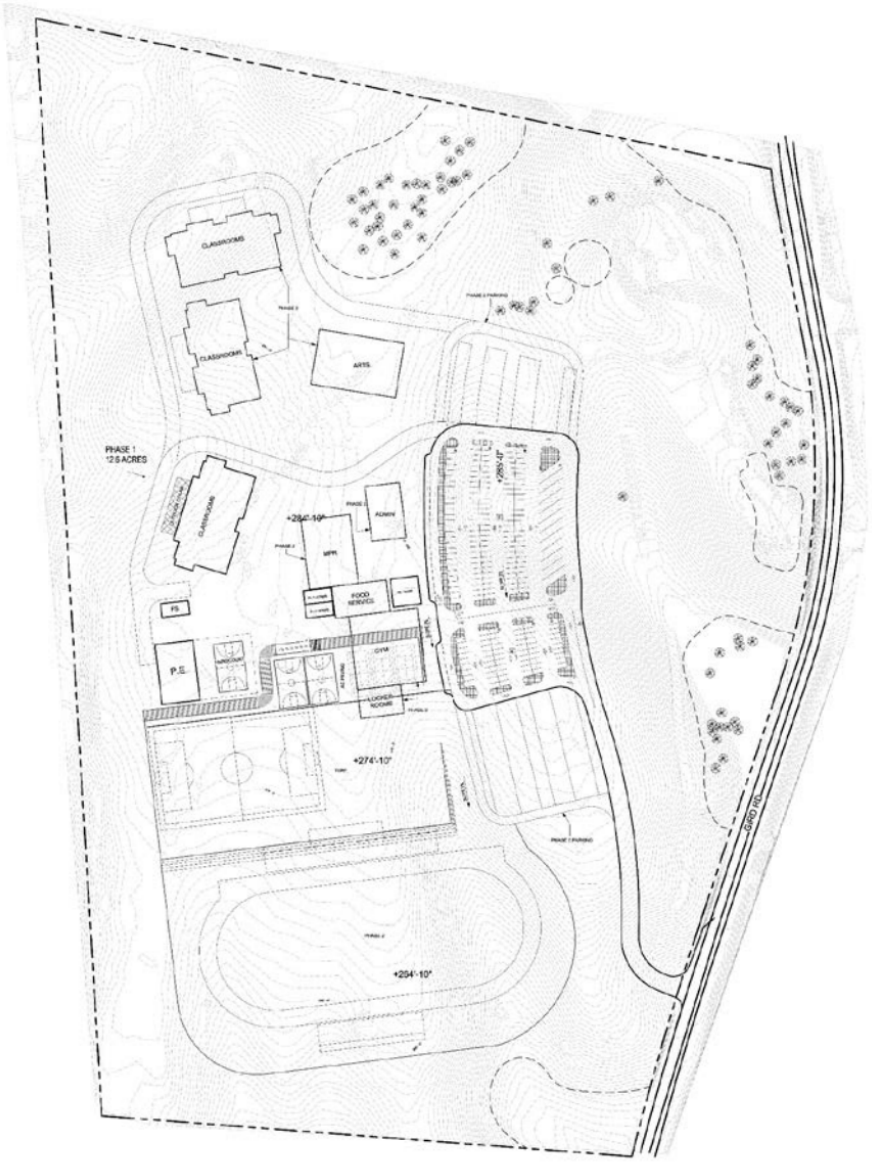
Thank you.

Teresa Platt
SaveGirdValley.com
760-468-2025
SaveGirdValley@gmail.com

COMMENTS ON NOP ON EIR PROPOSED BUSD HIGH SCHOOL, GIRD VALLEY, FALLBROOK, CA

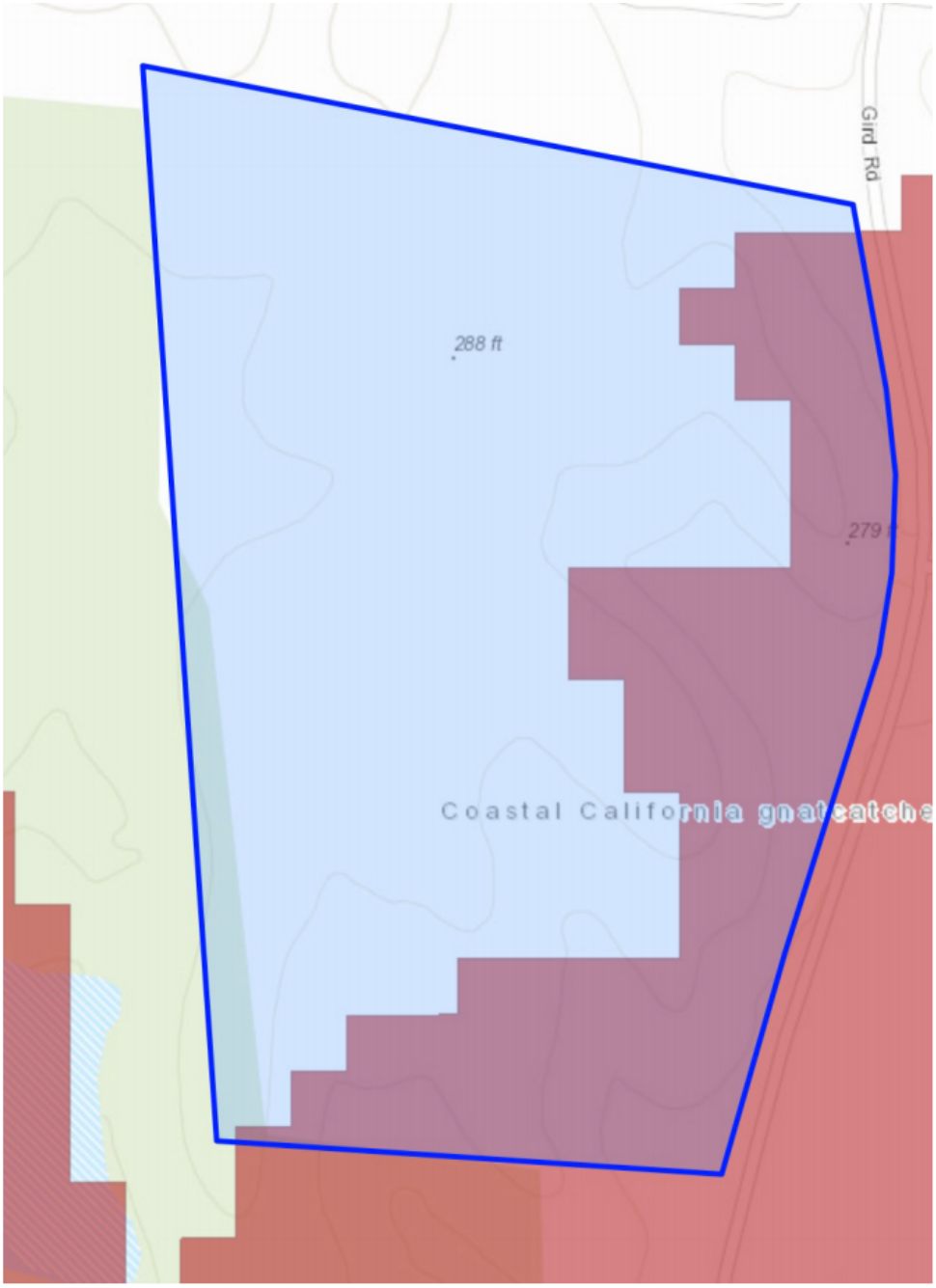
SENSITIVE SPECIES: The Initial CEQA on the proposed Gird Road site reported, "Development of the project will impact approximately 22.4 acres of the 48 acre site." Now the NOP of the EIR states the project "will disturb 39.5 acres."

Project Site Plan



BUSD plans to build over most of the land including the 16.14 acres of federally-designated (Endangered Species Act) critical habitat for the wetlands-dependent endangered arroyo toad.

GIRD VALLEY SITE OVERLAID IN RED WITH ARROYO TOAD CRITICAL HABITAT:

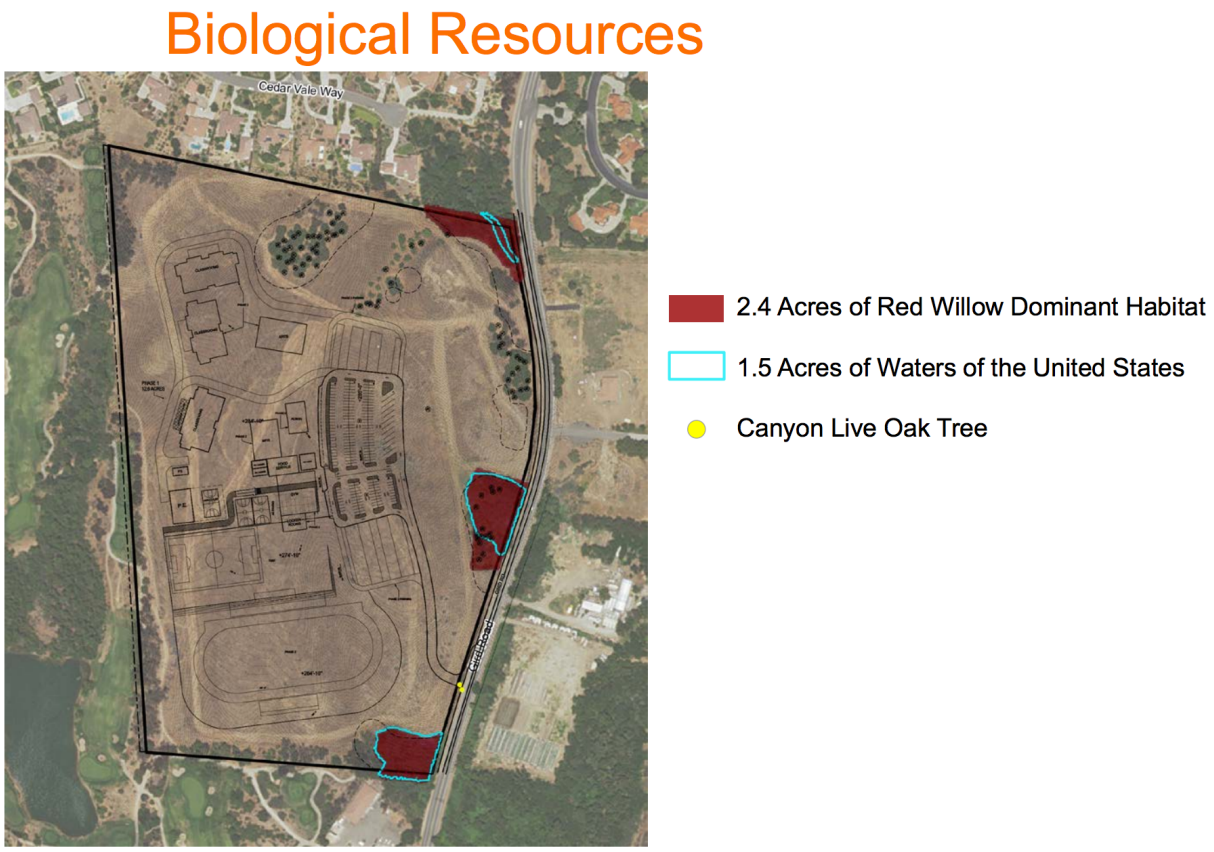


Source: U.S. Fish and Wildlife Service

Mitigation of this damage to 16.14 acres of critical habitat via use of mitigation credits from a mitigation land bank is costly and the burden will be borne by district households. The average cost for mitigation credits in San Diego County is $380,000/acre. For credits located within the San Luis Rey River Valley, estimate $500,000/acre. It's difficult to imagine a scenario where the value gained would justify the habitat destruction or cost.

Beyond sensitive or endangered species that may occur on the site along with federally-designated critical habitat, the Initial CEQA stated, “Three unnamed tributaries to the San Luis Rey River are located on the site. The San Luis Rey River is a perennial drainage that flows southwesterly through the project area. Project contains 2.4 acres of ephemeral drainages and associated riparian habitat that are considered California Department of Fish and Wildlife jurisdictional drainage features regulated by Section 1602. The site contains approximately 1.5 acres of ephemeral drainages that would be considered jurisdictional WUS regulated by the USACE and the Regional Water Quality Control Board. 2.4 acres of the site are ephemeral drainages and associated riparian habitat that would be considered County Resource Protection Ordinance Wetlands Areas.”

All these various agencies should be engaged in the process and we are pleased that the Center for Biological Diversity has agreed to participate. Additionally, some of these sensitive areas are noted on the proposed parcel map but the arroyo toad’s critical habitat is conspicuous by its absence.



ERROR RE: ADDRESS: The property under discussion, on Gird Road in Gird Valley in Fallbrook, is not in Bonsall. It is located in the 92028 zip code in the unincorporated area of Fallbrook in North San Diego County. It is the area where Fallbrook was first founded and its Live Oak Creek is the original water source for the community and the inspiration for the town's name (originally Fall Brook). This is the second time we've had to correct the address on documents distributed by BUSD related to the project in Fallbrook's historical Gird Valley. It is an ethical imperative to provide an accurate description to the community. The misstated address makes it appear as if BUSD is complying with County/State BOEs recommendation during BUSD's unification process that BUSD sell the Fallbrook property and keep any construction within Bonsall's central core in order to limit greenhouse gases (GHGs) and transportation related environmental costs.

CONFLICT OF INTEREST: Possible conflict of interest exists since the developer, BUSD, is also the Lead Agency. Additionally, BUSD's facility manager is a former employee of the contractor who just won the Request for Proposal (RFP) for construction services related to a Lease-Leaseback (LLB) on this site. While the Board directed the RFP for this LLB be non site specific (allowing for further review of a property adjacent to BUSD's campus on Lilac Road, the Ocean Breeze Ranch property), LLBs are required by law to be site specific to district-owned land. Additionally, after funding to build a high school on Gird Road lost five times at the ballot box (with the most recent attempt in 2016 funded by the proposed Lilac Hills Ranch development and Erickson Hall Construction), developers have more to gain from this project than does the community. For these reasons, we request a second point of contact beyond BUSD for all comments submitted on the NOP and/or EIR.

SCHOOL SPRAWL GENERATES URBAN SPRAWL: The location of a high school in Gird Valley will trigger more development in an area that strongly committed decades ago to slow growth and low density. Reinforcing this commitment, Gird Valley and the larger Fallbrook area were formally down zoned in the County General Plan. This, and other reasons (topography, environmental mitigation costs, proximity to homes, traffic), contributed to Fallbrook Union High School District (FUHSD) declaring the property surplus and preparing it for sale. The 2011 Real Property Advisory Report prepared during this process stated, **"It was noted that, if the demographic projections are accurate, an increase of about 250 students over the next 10-20 years or so will not tax the current Fallbrook High School campus."** (FUHSD: 4,000+-student capacity, current enrollment approximately 2,000). Upon unification, BUSD then acquired the surplus Gird Road property from FUHSD in a disposition of assets and the State and County Boards of Education both advised BUSD to sell the property, advice BUSD ignored.

HARDSCAPE: Parking and hardscape square footage should be broken out from landscaping in the EIR.

LIGHT/NOISE POLLUTION: We can still see the stars in Gird Valley so light pollution, along with noise and traffic, are of great concern.

SCENIC CORRIDOR: Gird Road is a County scenic corridor so oversized construction and an estimated 50% increase in vehicles daily on Gird Road (Kunzman) will compromise its scenic designation.

VIEW SHEDS: View sheds will be negatively impacted for property owners on the hills surrounding the property. This will reduce property values and property taxes.

FIRE SAFETY: **The project must have at least two access/exit points for fire safety since it is located in a high fire danger area. There should absolutely be no waiver for this very important requirement.** Gird Valley is four miles long, culminating to the north at Reche Road and Live Oak Park. Beyond evacuation of students, teachers and staff, the safety of valley residents is also important.

TRAFFIC FLOW/PEDESTRIAN SAFETY: The current design for parking and student drop off is completely inadequate to protect pedestrian safety. Because the proposed site on Gird Road is located at the northernmost end of the District, virtually every student and staff member will approach from the south and have to turn left and cross the flow of oncoming traffic to access the high school parking lot. To the west of the southern end of Gird Valley, west of Knottwood Way, a road and overpass are under construction connecting Gird Road to the Via Monserate/Highway 76 intersection. If a large high school is built on Gird Road, traffic through the Sycamore Ranch residential neighborhood will increase dramatically as drivers attempt to avoid congestion on Gird Road and Highway 76. **We strongly urge the County initiate a traffic study independent of the developer's study (Kunzman) which declared the proposed high school/performing arts center project would have "no significant traffic impacts".**

HISTORICAL ENVIRONMENTAL FEATURES: At least one of the unnamed tributaries is most likely Live Oak Creek which runs from Live Oak Park through Gird Valley to the San Luis Rey River Valley. Live Oak Creek was the original Fall Brook for which the town of Fallbrook was named. In addition to its environmental values, it carries historical significance. To the north, the new Monserate Winery is working with various agencies on watershed restoration so there are issues with destruction of southern valley watersheds on this property. The Army Corps of Engineers should be consulted.

ENVIRONMENTAL DEGRADATION OF THE SITE BY THE DEVELOPER: The site was never farmed, tilled or developed and the Initial CEQA stated, "eight sensitive plant species" and "22 sensitive wildlife species were determined to have the potential to occur on the project site." Ignoring these facts, BUSD used mechanical clearing, ran goats on the property and erected an unsightly barbed wire fence shortly before starting the environmental review process. How many species were disturbed is unknown. To preserve the value of the property as potential mitigation land, it should have remained undisturbed before studying the site.

ALTERNATIVES: If BUSD did not own the Gird Road property, it is highly unlikely BUSD would have considered a parcel located at the northern most end of the district. This factor most likely contributed to its most recent bond failure because the proposed location results in a long

commute for many of the students living within BUSD. Members of the BUSD Board of Trustees have publicly stated regrets they were misled about options available for selling the site. It is becoming obvious to the community that BUSD should acquire the Ocean Breeze Ranch property adjacent to its Sullivan Middle School/Bonsall High School campus in Bonsall. This property has been offered for zero down and its centralized location would reduce transportation costs and greenhouse gases (GHGs). See the community's Interim Property Report on alternatives, including the Ocean Breeze Ranch property.

ALTERNATIVES: BUSD has approximately 220 high school students in a building designed for 350. Additionally, Fallbrook Union High School District (FUHSD) is built for a capacity of over 4,000 and has room for another 2000 students and just received $45 million in funding for upgrades. Palomar Campus North to be built a few miles to the east will encompass 380,000 sq. ft. of buildings and 200,000 sq. ft. of parking. Palomar's enrollment has been declining for years. The taxpayers have funded plenty of space for traditional education so BUSD should be cautious with overbuilding, especially since its bond for funding on Gird Road has lost five times and organized community opposition will most likely ensure another loss.

NONCOMPLIANCE WITH COUNTY GENERAL PLAN: Any new high school should comply with the County General Plan which down zoned Gird Valley and Fallbrook.

NONCOMPLIANCE WITH COMMUNITY PLANS: The developer/BUSD should engage with the Fallbrook Community Planning Group (FCPG) for input on the Gird Road location. The fact that they have not reveals that BUSD believes there is a very high probability FCPG would reject a high school in Gird Valley.

NONCOMPLIANCE WITH PREVIOUS EIRs: BUSD stated in its petition for unification to the State and County that it could accommodate all the high school students on the Sullivan campus in Bonsall. The State and County BOEs both recommended the Gird Road property be sold since it had never been used as a school site and had been officially declared surplus by FUHSD. "**Because the parcel is undeveloped and has never been a school site, this study recommends the districts negotiate the value and disposition of the parcel," said the State Board of Education.**

BUSD ignored this. The Negative Declaration that BUSD received in the EIR related to its Unification Petition was based on minimal environmental impact (approx. 100 parking spaces on what was then grass).

*"*Upon unification, the district's plan for the high school facility is to convert the existing Sullivan Middle School site into a high school over a 4 year period," stated BUSD." The current enrollment at the middle school is 533 students. **At this time, the site has 10 excess capacity classrooms for additional students if needed. This would provide ample space for the projected enrollment of 513 students for all four grades of high school.** In addition, the site has a special education classroom and regional program currently housed on site."

Unification was offered to the community as an alternative to the big schools (1500+ enrollment at Fallbrook, Vista, Oceanside, Temecula) that the vast majority of students attend today. BUSD was to offer an alternative with the recognition that students don't all do well at big schools. As a small unified district, BUSD is in a position to offer this alternative. There is sufficient space at its brand new "state-of-the-art" Bonsall High School (opened 2016) on its Sullivan Middle School Campus in Bonsall, in the excess classrooms at Sullivan Middle School, and on land adjacent to Bonsall High School/Sullivan Middle School (Ocean Breeze Ranch property).

With the excess capacity at Fallbrook Union High School combined with Palomar Community College's new North Campus underway at the 15 and 76 in Fallbrook, and the defeat of Lilac Hills Ranch development, North County has more than enough square footage dedicated to educational space.

Ignoring its commitments to the community since unification, BUSD (with Erickson-Hall Construction) has built a 350-student capacity high school at the Sullivan Middle School Campus and is now attempting to build a 1500-student high school and a Performing Arts Center (with no review as to need). Fallbrook has an Arts Center in town, plus the Bob Burton Center for the Performing Arts located at the Fallbrook High School. Additionally, Palomar College's North Campus is constructing similar facilities. Fallbrook also has over a dozen wedding and event venues that offer similar facilities.

BUSD's high school enrollment declined from 235 students reported to the press in September 2016 to its website reporting 228 students (grades 9, 10 and 11) housed in a new 18,000 sq. ft. building (350 student capacity) located at the Sullivan campus in Bonsall.

Daily attendance for the new BUSD high school was 31.74 in 2014-2015, 133.12 in 2015-2016 and 218.37 in 2016-2017 in a brand new building with a capacity for 350 built on a campus BUSD stated, during its unification process, could house 513 high school students without building anything.

According to reports related to BUSD's debt obligations, follows total attendance across the entire district (350-capacity Bonsall High School, Bonsall Elementary, Bonsall West Elementary, Sullivan Middle, Vivian Banks Charter):

ADA, Enrollment and AL/LI Enrollment Percentage

	Average Daily Attendance [1]					*Enrollment*	
Fiscal Year	*K-3*	*4-6*	*7-8*	*9-12*	*Total ADA*	*Total Enrollment* [2]	*% of EL/LI Enrollment* [2]
2013-14	1,087.44	726.22	358.82	--[3]	2,172.08	2,260	35.89%
2014-15	1,043.86	685.55	391.17	31.74	2,182.32	2,287	37.70
2015-16	953.33	689.71	402.09	133.12	2,178.25	2,273	35.23
2016-17	938.39	685.87	397.85	218.37	2,240.48	2,464	34.98

Poor traffic patterns and limited parking are issues at all the BUSD schools but BUSD administration does not run a carpool program nor does it offer staggered starts. SaveGirdValley.com has offered to contribute $1,000 toward the establishment of carpools and, to this end, reviewed a dozen apps on the market and recommended CarpoolToSchool.com.

BUSD promised the community, in its Petition for Unification: **"The board has studied the facilities issue and believes that SMS can house very adequately the small high school that it envisions. We do not want, nor do we need a massive brick and mortar high school that it envisions……Nor do we need fifty acres of dirt to accomplish our mission."** Based on these statements, the community (by a small majority) supported BUSD's expansion to include the high school grades without any additional construction (Measure BB, 2012).

One could argue that growth is making BUSD change its plans but San Diego County requires developers to provide school buildings so these issues will be addressed when developments are approved. However, BUSD has actively engaged in supporting large scale growth in conflict with San Diego County's General Plan (see BUSD's statements of support of Lilac Hills Ranch failed attempt to bypass the General Plan via Measure B, 2016). Since school sprawl contributes to urban sprawl and Fallbrook carries its share with an underutilized Fallbrook Union High School to the west and the 380,000 square foot Palomar Campus North breaking ground to the east, agencies should tread cautiously here.

After Lilac Hills Ranch development lost at the ballot box (Measure B) and BUSD lost its bond initiative (Measure DD) in November 2016, BUSD continued to push for a massive development in Gird Valley in Fallbrook, the fifth loss at the ballot box for building a high school on Gird Road. Gird Valley is a slow growth, low density area with few students located in Fallbrook (not Bonsall) at the northernmost range of the BUSD. Fallbrook already has an underutilized high school and just passed a bond measure to fund its $45 million upgrade (Fallbrook Union High School, Measure AA, 2016). Any new campus creates significant environmental impacts along with tremendous financial burdens to the district and its residents. Moving forward without

community support, and in the face or organized community opposition, could ultimately bankrupt the school district.

In light of the community's consistent and overwhelming opposition to building a high school on Gird Road (five fails at the ballot box over decades) and the availability of land adjacent to the current campus, we strongly recommend careful analysis before undertaking any new school construction in Gird Valley.

In conclusion, we expect school administrators to work together with the County and Boards of Education in the best interests of students and the residents of North San Diego County, an area with plenty of school space to meet projected growth, even without a school on Gird Road.

The community wins if space is leased at the new Palomar Community College North Campus or if students are housed at Fallbrook Union High School, in Bonsall at the Sullivan Middle/Bonsall High School campus and/or the adjacent Ocean Breeze property. These choices will result in better use of resources, less traffic and miles driven, protection of critical habitat and no loss of open space in Fallbrook's Gird Valley.

Attempting to burden BUSD residents with another $100-million+ debt for building on the Gird Valley parcel in the face of long-term and growing opposition is not prudent. This entire project comes at too great a cost and too great a risk.

Thank you for your time and consideration.

Respectfully submitted,

The Volunteers
www.SaveGirdValley.com

Appendix B
LARA Model Calculations

ESA

Bonsall High School LARA Model Analysis

Surrounding Land Use

Total ZOI acreage	Acreage of land compatible with ag within ZOI	% of acreage	Rating
327.62	141.55	43.204402	Moderate

Landscape Open Space	11.75
Orchard or Vineyard	11.78
Spaced Rural Residential	13.36
Vacant and Undeveloped	104.66
Acreage of land compatible	141.55

LU Consistency

Parcel number (APN)	Parcel Acreage	Proj BoundaryAcreage	Median parcel size w/in ZOI	Median parcel size assoc w/ project boundary	Rating
124-340-34-00	50.18	50.18	0.72	50.18	Low
		ZOI Acreage			
12434007	1.01	327.62			
12434032	8.95				
12434033	9.76				
12434034	48.16				
12434049	4.19				
12434054	0.00				
12434057	2.03				
12434058	2.08				
12434059	2.26				
12434060	2.36				
12434061	2.15				
12434062	2.16				
12434063	2.16				
12435101	8.79				
12435102	10.46				
12435103	7.54				
12435104	2.63				
12435105	3.16				
12435106	2.46				
12435107	0.25				
12435150	4.91				
12439301	1.02				
12439302	0.91				
12439317	0.94				
12439328	0.21				
12439329	1.03				
12439330	1.14				
12439332	1.08				
12439334	0.87				
12439335	0.30				
12439344	0.58				
12439345	0.89				
12439346	0.20				

12439347	0.52
12439348	0.97
12439350	1.20
12439601	1.38
12439602	1.50
12439603	1.81
12439604	1.56
12439605	0.30
12439608	0.10
12439609	1.03
12439610	1.04
12439611	1.08
12439612	1.00
12439613	1.54
12439614	1.59
12439615	1.18
12439616	1.01
12439617	0.95
12439618	0.70
12439619	0.48
12439620	0.02
12439630	0.01
12439631	6.61
12439633	1.00
12439634	1.07
12439635	1.00
12440528	0.80
12440529	1.05
12440530	0.60
12440531	0.68
12440533	0.72
12440534	0.89
12440535	0.80
12440536	0.82
12440537	0.84
12440538	0.69
12440539	0.63
12440540	1.13
12440541	1.18
12440541	0.00
12440542	1.02
12440543	0.64
12440544	0.69
12440545	1.34
12440546	2.25
12440547	0.76
12440548	0.79
12440549	0.71
12440550	0.71
12440551	0.88
12440552	1.06
12440553	0.68
12444001	0.52
12444002	0.53
12444003	0.50
12444004	0.80

12444005	0.42
12444006	0.38
12444007	0.42
12444008	0.41
12444009	0.44
12444010	0.49
12444011	0.33
12444012	0.34
12444013	0.34
12444014	0.46
12444015	0.49
12444016	0.37
12444017	0.17
12444018	0.01
12444019	0.26
12444020	0.39
12444021	0.34
12444022	0.34
12444023	0.43
12444024	0.41
12444025	0.39
12444026	0.47
12444026	0.00
12444027	0.27
12444028	0.07
12444029	0.00
12444038	1.37
12444039	1.71
12444041	3.66
12444042	4.41
12444043	1.10
12444044	0.11
12444045	0.00
12444045	2.64
12446001	0.55
12446002	0.53
12446003	0.53
12446004	0.52
12446005	0.53
12446006	0.50
12446007	0.50
12446008	0.78
12446009	0.66
12446010	0.68
12446011	0.73
12446019	0.09
12446020	0.78
12446021	0.70
12446023	0.00
12446023	0.20
12446024	1.32
12446028	2.33
12446125	1.31
12446305	0.00
12446306	0.27
12446307	0.63

12446308	0.58
12446309	0.55
12446310	0.48
12446311	0.38
12446312	0.26
12446313	0.02
12446324	2.89
12446324	92.85

Slope

Soil type	Slope %	Available in Proj Boundary	Available for Ag. Use	Avg slope of available ag use	Rating
AtD	15	1.8	1.8	10.25	High
GoA	2	2	2		
RaC	9	33.5	33.5		
RaD2	15	10.9	10.9		

* Although the gross site acreage is 50.18, approximate site area of 48.2 acres is estimated as total Area of Interest per the Natural Resources Conservation Service Web Soil Survey (see Biological Resources Assessment).

Soil Quality

	Column A	Column B	Column C	Column D	Column E	Column F	Column G
	Soil Type	Size of project site (acreage)	Unavailable for agricultural use	Available for agricultural use	Proportion of project site	Is soil candidate for prime farmland or farmland of statewide significance? (Yes = 1, No = 0)	Multiply Column E by Column F
Row 1	AtD	1.8	0	1.8	0.04	1	0.037344398
Row 2	GoA	2	0	2	0.04	1	0.041493776
Row 3	RaC	33.5	0	33.5	0.70	1	0.695020747
Row 4	RaD2	10.9	0	10.9	0.23	0	0
	Total	48.2	Total	48.2			
						Soil Quality Matrix Score	0.77
							High

* Assume that all land is available for use as conservative analysis.

Appendix C
Air Quality Monitoring

ESA

Air Quality Appendix

Proposed Project Assumptions
Proposed Project Calculation Summary
Proposed Project CalEEMod Output

Proposed Project Assumptions

Bonsall New High School
Phase 1 Construction Assumptions

CalEEMod Inputs (Non-Default information only)

Project Location	
County	San Diego
Air District	SDAPCD
Climate Zone	13
Operational Year	2021
Utility Provider	SDG&E

Land Use		Sq Ft	KSF	(Units/Students)	Acres	CalEEMod Land Use Type
Educational						
	High School	46,270	46.27	500	0.60	High School
Parking						0
	Street				1.80	Other Asphalt Surfaces
	Parking Lot				1.70	Parking Lot
	Landscape/Hardscape				9.00	Other Non-Asphalt Surfaces

Construction Schedule

Phases (if applicable)	CalEEMod Default (# Days)	Project Revised (# Days)	Start (month/date/year)	Finish (month/date/year)
Grading*	110	110	9/1/2019	2/1/2020
Building Construction	300	239	2/1/2020	12/31/2020
Architectural Coatings	20	20	12/4/2020	12/31/2020
Paving	20	20	2/1/2020	3/1/2020
Construction days**	410	349		

* Phase 1 and Phase 2 area will be graded prior to construction of Phase 1 buildings.
** Project days are based on construction schedule provided by Applicant. Architectural coating and Paving are assumed to overlap with building construction activities and therefore are not used in determining the number of construction days per phase. Default days are kept for Architectural Coating activities and Paving Activities. There is no demolition as a part of this project and therefore demolition is not included in project activities.

All remaining construction information uses Default settings, with the exception of those listed below:

Soils are anticipated to be balanced onsite
Anticipate Tier 3 construction fleet
Water exposed areas 3 times daily.
Maximum VOC content of 150g/L for architectural coating materials

Bonsall New High School
Phase 2 Construction Assumptions

CalEEMod Inputs (Non-Default information only)

Project Location	
County	San Diego
Air District	SDAPCD
Climate Zone	13
Operational Year	2025
Utility Provider	SDG&E

Land Use		Sq Ft	KSF	(Units/Students)	Acres	CalEEMod Land Use Type
Educational						
	High School	104,230	104.23	1,000	2.60	High School
Parking						0
	Street				1.00	Other Asphalt Surfaces
	Parking Lot				1.40	Parking Lot
	Landscape/Hardscape				21.50	Other Non-Asphalt Surfaces

Construction Schedule

Phases* (if applicable)	CalEEMod Default (# Days)	Project Revised (# Days)	Start (month/date/year)	Finish (month/date/year)
Building Construction	440	283	1/1/2023	1/31/2024
Architectural Coatings	35	35	12/14/2023	1/31/2024
Paving	35	35	1/1/2023	2/18/2023
Construction days**	440	283		

* Phase 1 and Phase 2 area will be graded prior to construction of Phase 1 buildings.
** Project days are based on construction schedule provided by Applicant. Architectural coating and Paving are assumed to overlap with building construction activities and therefore are not used in determining the number of construction days per phase. Default days are kept for Architectural Coating activities and Paving Activities. There is no demolition as a part of this project and therefore demolition is not included in project activities.

All remaining construction information uses Default settings, with the exception of those listed below:

Anticipate Tier 3 construction fleet
Total disturbed site area 39.5 acres. Total Phase 1 area is 13.1 AC. Total Phase 2 area is 11.8 AC.
Remaining 14.6 AC of landscaping assumed for Phase 2.
Water exposed areas 3 times daily.
Maximum VOC content of 150g/L for architectural coating materials

Bonsall New High School
Phase 1 Assumptions

CalEEMod Inputs (Non-Default information only)

			2010[1]	2020[2]	2030
Project Location		CO intensity	720.49	493.5	450.3
County	San Diego	% renewable	11.90%	45.20%	50.00%
Air District	SDAPCD				
Climate Zone	13				
Operational Year	2021				
Utility Provider	SDG&E				

[1] CalEEMod CO intensity based on 2009 data. According to SDG&E, 11.9% of SDG&E electricity came from renewables. https://www.sdge.com/state-government-affairs/renewable-portfolio-standard

[2] http://www.cpuc.ca.gov/renewables/

Land Use	**Sq Ft**	**KSF**	**Units/Students**	**Acres**	**CalEEMod Land Use Type**
Educational					
High School	46,270	46.27	500	0.60	High School
Parking					
Street				1.80	Other Asphalt Surfaces
Parking Lot				1.70	Parking Lot
Landscape/Hardscape				9.00	Other Non-Asphalt Surfaces

Service Population	20	employees
	500	students
	520	**Total**

Note: The square footage used in the Air Quality and GHG modeling is the gross square footaage to accurately account for the amount of emissions generated by the operation of project land uses. Acreage is the site area of the proposed land uses (e.g., building footprint and not total square footage for multi-storied buildings).

Transportation:

Trip Generation

	Traffic Study*	**Project**			
	trips	**Weekday**	**Saturday**	**Sunday**	
High School	650	1.30	0.00	0.00	per student

*Based on Traffic Study Information as provided.

Bonsall New High School
Phase 1 Assumptions

Electric	***2013***	***2016***	***2013***	***2016***
	Title-24		Lighting	
High School	1.6	1.52	2.61	2.4795
Parking Lot	--		0.88	0.836

Natural Gas	***2013***	***2016***
	Title-24	
High School	5.46	5.187

*2013 Title 24 is more the current requirement and is 25% more restrictive than the 2008 Title 24. 2016 Title 24 is the current requirement and is more restrictive than the 2013 Title 24 standard (which is the CalEEmod default). It is conservatively estimated to be 5% more restrictive than 2013 Title 24 requirements for Electric and Natural Gas and 5% for lighting. These requirements are more restrictive than the ASHRE requirements. Additional reduction based on CO2e reductions assumed for 2016 compared to those assumed for 2013.

Lighting has a 10 percent reduction from 2008 based on 2013 Title 24. Additional 5% reduction assumed for increase to 2016 Title 24 requirements.

Water Use

	Indoor		Outdoor	
	Default	Reduced	Default	Reduced
High School	2,202,480.00	1,761,984.00	5,663,520.00	5,663,520.00

Removal of Septic

Septic	Aerobic	Lagoons
10.33	87.46	2.21
	0.98	0.02
	10.08	0.25
0.00	97.54	2.46

Title 24 2016 20% reduction for indoor water

Outdoor water based on CalEEMod default and does not consider artificial turf or drought-tolerant landscaping

Solid Waste Generation:	**Tons/year**	
	CalEEMod	**Reduced[2]**
High School	91.25	45.63

[2] According to the SD County General Plan, the County is in compliance with AB 939, which requires diversion of 50% solid waste away from landfills.

All remaining operational information uses Default settings, with the exception of those listed below:

Low flow bathroom and ktichen fixtures will be installed.

Water-efficient irrigation systems to be installed.

Bonsall New High School
Buildout Assumptions

CalEEMod Inputs (Non-Default information only)

			2010[1]	2020[2]	2030
Project Location		CO intensity	720.49	493.5	450.3
County	San Diego	% renewable	11.90%	45.20%	50.00%
Air District	SDAPCD				
Climate Zone	13				
Operational Year	2025				
Utility Provider	SDG&E				

[1] CalEEMod CO intensity based on 2009 data. According to SDG&E, 11.9% of SDG&E electricity came from renewables. https://www.sdge.com/state-government-affairs/renewable-portfolio-standard

[2] http://www.cpuc.ca.gov/renewables/

Land Use		**Sq Ft**	**KSF**	**Units/Students**	**Acres**	**CalEEMod Land Use Type**
Educational						
	High School	150,500	150.50	1,500	3.20	High School
Parking						
	Street				2.80	Other Asphalt Surfaces
	Parking Lot				3.10	Parking Lot
	Landscape/Hardscape				30.50	Other Non-Asphalt Surfaces

Service Population	60	employees
	1,500	students
	1,560	**Total**

Note: The square footage used in the Air Quality and GHG modeling is the gross square footaage to accurately account for the amount of emissions generated by the operation of project land uses. Acreage is the site area of the proposed land uses (e.g., building footprint and not total square footage for multi-storied buildings).

Transportation:

Trip Generation

	Traffic Study*	**Project**			
	trips	**Weekday**	**Saturday**	**Sunday**	
High School	1,950	1.30	0.00	0.00	per student

*Based on Traffic Study Information as provided.

Energy Use

Electric	***2013***	***2016***	***2013***	***2016***
	Title-24		Lighting	
High School	1.6	1.52	2.61	2.4795
Parking Lot	--		0.88	0.836

Natural Gas	***2013***	***2016***
	Title-24	
High School	5.46	5.187

*2013 Title 24 is more the current requirement and is 25% more restrictive than the 2008 Title 24. 2016 Title 24 (which will be in effect by the time the project is built) is conservatively estimated to be5% more restrictive than 2013 Title 24 requirements for Electric and Natural Gas and 5% for lighting. These requirements are more restrictive than the ASHRE requirements. Additional reduction based on CO2e reductions assumed for 2016 compared to those assumed for 2013.

Lighting has a 10 percent reduction from 2008 based on 2013 Title 24. Additional 5% reduction assumed for increase to 2016 Title 24 requirements.

Water Use

	Indoor		Outdoor	
	Default	Reduced	Default	Reduced
High School	6,607,440.00	5,285,952.00	16,990,560.00	16,990,560.00

Removal of Septic		
Septic	Aerobic	Lagoons
10.33	87.46	2.21
	0.98	0.02
	10.08	0.25
0.00	97.54	2.46

Title 24 2016 20% reduction for indoor water

Solid Waste Generation:	**Tons/year**	
	CalEEMod	**Reduced[2]**
High School	278.75	139.38

[2] According to the SD County General Plan, the County is in compliance with AB 939, which requires diversion of 50% solid waste away from landfills.

All remaining operational information uses Default settings, with the exception of those listed below:

Low flow bathroom and ktichen fixtures will be installed.

Water-efficient irrigation systems to be installed.

TABLE 7
TRIP GENERATION FORECASTS FOR BONSALL HIGH SCHOOL

	Land Use	Students	Trips per Unit							
			Daily	AM Peak Hour			PM Peak Hour			
				In	Out	Total	In	Out	Total	trip rate
Phase 1 2021	High School	500	650	90	40	130	25	40	65	1.3
Buildout 2025	High School	1500	1,950	270	120	390	75	120	195	1.3

Proposed Project Calculation Summary

Bonsall New High School

Construction Outputs from CalEEMod

Phase 1

Summer

		ROG	NOx	CO	SOx	PM10	PM2.5
				lbs/day			
Grading (2019)	Total	*1.61*	*30.04*	*37.31*	*0.06*	*4.85*	*2.75*
	Onsite	1.52	29.98	36.72	0.06	4.68	2.70
	Offsite	0.09	0.06	0.58	0.00	0.17	0.04
Grading (2020)	Total	*1.60*	*30.03*	*37.29*	*0.06*	*4.85*	*2.75*
	onsite	1.52	29.98	36.72	0.06	4.68	2.70
	offsite	0.07	0.05	0.57	0.00	0.17	0.04
Building Construction (2020)	Total	1.95	25.78	27.69	0.07	3.67	1.70
	onsite	0.67	14.23	17.87	0.03	0.90	0.90
	offsite	1.27	11.55	9.82	0.05	2.76	0.79
Paving	Total	*1.07*	*11.33*	*17.72*	*0.02*	*0.73*	*0.64*
	onsite	1.02	11.30	17.30	0.02	0.61	0.61
	offsite	0.06	0.04	0.43	0.00	0.12	0.03
Architectural Coating	Total	*43.77*	*1.48*	*3.25*	*0.01*	*0.51*	*0.21*
	onsite	43.59	1.36	1.83	0.00	0.10	0.10
	offsite	0.18	0.12	1.42	0.00	0.41	0.11
Construction Overlap							
Building Construction + Paving	Total	3.02	37.11	45.41	0.10	4.40	2.34
	onsite	1.69	25.52	35.17	0.05	1.51	1.51
	offsite	1.33	11.59	10.24	0.05	2.89	0.83
Building Construction + Coating	Total	45.72	27.26	30.94	0.08	4.17	1.90
	onsite	44.26	15.58	19.71	0.03	1.00	1.00
	offsite	1.46	11.67	11.23	0.05	3.18	0.91
Maximum Daily Summer Emissions		**45.72**	**37.11**	**45.41**	**0.10**	**4.85**	**2.75**
SDAPCD Thresholds		75	250	550	250	100	55
Significant		**No**	**No**	**No**	**No**	**No**	**No**

Mitigation: Not Required

Bonsall New High School

Construction Outputs from CalEEMod

Phase 1

Bonsall New High School

Construction Outputs from CalEEMod

Phase 1

Winter

		ROG	NOx	CO	SOx	PM10	PM2.5
				lbs/day			
Grading (2019)	Total	*1.61*	*30.04*	*37.31*	*0.06*	*4.85*	*2.75*
	Onsite	1.52	29.98	36.72	0.06	4.68	2.70
	Offsite	0.09	0.06	0.58	0.00	0.17	0.04
Grading (2020)	Total	1.61	30.03	37.26	0.06	4.85	2.75
	Onsite	1.52	29.98	36.72	0.06	4.68	2.70
	Offsite	0.08	0.06	0.53	0.00	0.16	0.04
Building Construction (2020)	Total	*2.08*	*25.84*	*27.59*	*0.07*	*3.67*	*1.70*
	onsite	0.67	14.23	17.87	0.03	0.90	0.90
	offsite	1.41	11.62	9.72	0.05	2.76	0.79
Paving	Total	*1.08*	*11.34*	*17.70*	*0.02*	*0.73*	*0.64*
	onsite	1.02	11.30	17.30	0.02	0.61	0.61
	offsite	0.06	0.04	0.40	0.00	0.12	0.03
Architectural Coating	Total	*43.79*	*1.50*	*3.17*	*0.01*	*0.51*	*0.21*
	onsite	43.59	1.36	1.83	0.00	0.10	0.10
	offsite	0.21	0.14	1.34	0.00	0.41	0.11
Construction Overlap							
Building Construction + Paving	Total	3.17	37.18	45.29	0.10	4.40	2.34
	onsite	1.69	25.52	35.17	0.05	1.51	1.51
	offsite	1.47	11.66	10.12	0.05	2.89	0.83
Building Construction + Coating	Total	45.88	27.34	30.76	0.08	4.18	1.91
	onsite	44.26	15.58	19.71	0.03	1.00	1.00
	offsite	1.62	11.76	11.06	0.05	3.18	0.91
Maximum Daily Winter Emissions		**45.88**	**37.18**	**45.29**	**0.10**	**4.85**	**2.75**
	SDAPCD Thresholds	75	250	550	250	100	55
	Significant	**No**	**No**	**No**	**No**	**No**	**No**

Bonsall New High School

Construction Outputs from CalEEMod

Phase 1

MAXIMUM

		ROG	NOx	CO	SOx	PM10	PM2.5
		lbs/day					
Grading (2019)	Total	*1.61*	*30.04*	*37.31*	*0.06*	*4.85*	*2.75*
	Onsite	1.52	29.98	36.72	0.06	4.68	2.70
	Offsite	0.09	0.06	0.58	0.00	0.17	0.04
Grading (2020)	Total	1.61	30.03	37.29	0.06	4.85	2.75
	Onsite	1.52	29.98	36.72	0.06	4.68	2.70
	Offsite	0.08	0.06	0.57	0.00	0.17	0.04
Building Construction (2020)	Total	*2.08*	*25.84*	*27.69*	*0.07*	*3.67*	*1.70*
	onsite	0.67	14.23	17.87	0.03	0.90	0.90
	offsite	1.41	11.62	9.82	0.05	2.76	0.79
Paving	Total	*1.08*	*11.34*	*17.72*	*0.02*	*0.73*	*0.64*
	onsite	1.02	11.30	17.30	0.02	0.61	0.61
	offsite	0.06	0.04	0.43	0.00	0.12	0.03
Architectural Coating	Total	*43.79*	*1.50*	*3.25*	*0.01*	*0.51*	*0.21*
	onsite	43.59	1.36	1.83	0.00	0.10	0.10
	offsite	0.21	0.14	1.42	0.00	0.41	0.11
Construction Overlap							
Building Construction + Paving	Total	3.17	37.18	45.41	0.10	4.40	2.34
	onsite	1.69	25.52	35.17	0.05	1.51	1.51
	offsite	1.47	11.66	10.24	0.05	2.89	0.83
Building Construction + Coating	Total	45.88	27.34	30.94	0.08	4.18	1.91
	onsite	44.26	15.58	19.71	0.03	1.00	1.00
	offsite	1.62	11.76	11.23	0.05	3.18	0.91
Maximum Daily Winter Emissions		**45.88**	**37.18**	**45.41**	**0.10**	**4.85**	**2.75**
SDAPCD	Thresholds	75	250	550	250	100	55
	Significant	**No**	**No**	**No**	**No**	**No**	**No**

Bonsall New High School

Construction Outputs from CalEEMod

Phase 2

Summer

		ROG	NOx	CO	SOx	PM10	PM2.5
				lbs/day			
Building Construction (2023)	Total	*2.57*	*29.37*	*33.13*	*0.11*	*6.17*	*2.36*
	onsite	0.67	14.23	17.87	0.03	0.90	0.90
	offsite	1.90	15.14	15.25	0.09	5.27	1.45
Building Construction (2024)	Total	2.48	29.10	32.28	0.11	6.17	2.36
	onsite	0.67	14.23	17.87	0.03	0.90	0.90
	offsite	1.81	14.87	14.40	0.08	5.27	1.45
Paving	Total	*0.79*	*11.32*	*17.64*	*0.02*	*0.73*	*0.64*
	onsite	0.74	11.30	17.30	0.02	0.61	0.61
	offsite	0.05	0.03	0.34	0.00	0.12	0.03
Architectural Coating (2023)	Total	*54.17*	*1.54*	*4.03*	*0.01*	*0.89*	*0.31*
	onsite	53.88	1.36	1.83	0.00	0.10	0.10
	offsite	0.30	0.18	2.20	0.01	0.79	0.21
Architectural Coating (2024)	*Total*	*54.16*	*1.52*	*3.89*	*0.01*	*0.89*	*0.31*
	onsite	53.88	1.36	1.83	0.00	0.10	0.10
	offsite	0.28	0.16	2.06	0.01	0.79	0.21
Construction Overlap							
Building Construction (2023)+Paving	*Total*	*3.36*	*40.69*	*50.77*	*0.14*	*6.90*	*3.00*
	onsite	1.41	25.52	35.17	0.05	1.51	1.51
	offsite	1.94	15.17	15.60	0.09	5.39	1.49
Building Construction (2024) + Coating	*Total*	*56.64*	*30.62*	*36.17*	*0.12*	*7.06*	*2.67*
	onsite	54.55	15.58	19.71	0.03	1.00	1.00
	offsite	2.09	15.03	16.46	0.09	6.06	1.67
Maximum Daily Summer Emissions		**56.64**	**40.69**	**50.77**	**0.14**	**7.06**	**3.00**
SDAPCD Thresholds		75	250	550	250	100	55
Significant		**No**	**No**	**No**	**No**	**No**	**No**

Mitigation: Not Required

Bonsall New High School

Construction Outputs from CalEEMod

Phase 2

Bonsall New High School

Construction Outputs from CalEEMod

Phase 2

Winter

		ROG	NOx	CO	SOx	PM10	PM2.5
				lbs/day			
Building Construction (2023)	Total	*2.89*	*29.42*	*32.83*	*0.11*	*6.17*	*2.36*
	onsite	0.67	14.23	17.87	0.03	0.90	0.90
	offsite	2.22	15.19	14.96	0.08	5.27	1.46
Building Construction (2024)	Total	*2.71*	*29.13*	*32.00*	*0.11*	*6.17*	*2.36*
	onsite	0.67	14.23	17.87	0.03	0.90	0.90
	offsite	2.03	14.91	14.13	0.08	5.27	1.45
Paving	Total	*0.79*	*11.33*	*17.62*	*0.02*	*0.73*	*0.64*
	onsite	0.74	11.30	17.30	0.02	0.61	0.61
	offsite	0.05	0.03	0.32	0.00	0.12	0.03
Architectural Coating (2023)	Total	*54.22*	*1.56*	*3.89*	*0.01*	*0.89*	*0.31*
	onsite	53.88	1.36	1.83	0.00	0.10	0.10
	offsite	0.34	0.20	2.06	0.01	0.79	0.21
Architectural Coating (2024)	*Total*	*54.20*	*1.54*	*3.75*	*0.01*	*0.89*	*0.31*
	onsite	53.88	1.36	1.83	0.00	0.10	0.10
	offsite	0.32	0.18	1.92	0.01	0.79	0.21
Construction Overlap							
Building Construction (2023)+Paving	Total	3.69	40.74	50.45	0.13	6.90	3.00
	onsite	1.41	25.52	35.17	0.05	1.51	1.51
	offsite	2.27	15.22	15.28	0.08	5.39	1.49
Building Construction (2024) + Coating	Total	56.91	30.68	35.75	0.12	7.06	2.67
	onsite	54.55	15.58	19.71	0.03	1.00	1.00
	offsite	2.36	15.09	16.05	0.09	6.06	1.67
Maximum Daily Winter Emissions		**56.91**	**40.74**	**50.45**	**0.13**	**7.06**	**3.00**
SDAPCD Thresholds		75	250	550	250	100	55
Significant		**No**	**No**	**No**	**No**	**No**	**No**

Mitigation: Not Required

Bonsall New High School

Construction Outputs from CalEEMod

Phase 2

MAXIMUM

		ROG	NOx	CO	SOx	PM10	PM2.5
				lbs/day			
Building Construction (2023)	Total	*2.89*	*29.42*	*33.13*	*0.11*	*6.17*	*2.36*
	onsite	0.67	14.23	17.87	0.03	0.90	0.90
	offsite	2.22	15.19	15.25	0.09	5.27	1.46
Building Construction (2024)	Total	2.71	29.13	32.28	0.11	6.17	2.36
	onsite	0.67	14.23	17.87	0.03	0.90	0.90
	offsite	2.03	14.91	14.40	0.08	5.27	1.45
Paving	Total	*0.79*	*11.33*	*17.64*	*0.02*	*0.73*	*0.64*
	onsite	0.74	11.30	17.30	0.02	0.61	0.61
	offsite	0.05	0.03	0.34	0.00	0.12	0.03
Architectural Coating (2023)	Total	*54.22*	*1.56*	*4.03*	*0.01*	*0.89*	*0.31*
	onsite	53.88	1.36	1.83	0.00	0.10	0.10
	offsite	0.34	0.20	2.20	0.01	0.79	0.21
Architectural Coating (2024)	*Total*	*54.20*	*1.54*	*3.89*	*0.01*	*0.89*	*0.31*
	onsite	53.88	1.36	1.83	0.00	0.10	0.10
	offsite	0.32	0.18	2.06	0.01	0.79	0.21
Construction Overlap							
Building Construction (2023)+Paving	*Total*	*3.69*	*40.74*	*50.77*	*0.14*	*6.90*	*3.00*
	onsite	1.41	25.52	35.17	0.05	1.51	1.51
	offsite	2.27	15.22	15.60	0.09	5.39	1.49
Building Construction (2024) + Coating	*Total*	*56.91*	*30.68*	*36.17*	*0.12*	*7.06*	*2.67*
	onsite	54.55	15.58	19.71	0.03	1.00	1.00
	offsite	2.36	15.09	16.46	0.09	6.06	1.67
Maximum Daily Emissions		**56.91**	**40.74**	**50.77**	**0.14**	**7.06**	**3.00**
SDAPCD	Thresholds	75	250	550	250	100	55
	Significant	**No**	**No**	**No**	**No**	**No**	**No**

Mitigation: Not Required

Bonsall New High School

Construction Outputs from CalEEMod

Phase 2

Phase 1 Operations and Phase 2 Construction Overlap

	ROG	NOx	CO	SOx	PM10	PM2.5
			lbs/day			
Maximum Daily Emissions						
Phase 1 Operations Daily Max	2.70	4.67	12.80	0.04	3.65	1.00
Phase 2 Construction Daily Max	56.91	40.74	50.77	0.14	7.06	3.00
Maximum Daily Emissions	*59.61*	*45.41*	*63.57*	*0.18*	*10.71*	*4.00*

Proposed Project CalEEMod Output

Bonsall New High School Phase 1 Construction & Operation

San Diego Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	500.00	Student	0.60	46,270.00	0
Other Asphalt Surfaces	1.80	Acre	1.80	78,408.00	0
Other Non-Asphalt Surfaces	9.00	Acre	9.00	392,040.00	0
Parking Lot	1.70	Acre	1.70	74,052.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	493.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - See Assumptions

Construction Phase - See Assumptions

Grading -

Architectural Coating - See Assumptions

Vehicle Trips - See Assumptions

Energy Use - See Assumptions

Water And Wastewater - See Assumptions

Solid Waste - See Assumptions

Construction Off-road Equipment Mitigation - See Assumptions

Water Mitigation - See Assumptions

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Parking	250.00	150.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	300.00	239.00
tblConstructionPhase	NumDays	30.00	110.00
tblConstructionPhase	PhaseEndDate	2/25/2021	12/31/2020
tblConstructionPhase	PhaseEndDate	11/29/2019	1/31/2020
tblConstructionPhase	PhaseEndDate	1/28/2021	2/28/2020
tblConstructionPhase	PhaseStartDate	1/29/2021	12/4/2020
tblConstructionPhase	PhaseStartDate	11/30/2019	2/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2021	2/1/2020
tblEnergyUse	LightingElect	2.61	2.48
tblEnergyUse	LightingElect	0.88	0.84
tblEnergyUse	T24E	1.60	1.52
tblEnergyUse	T24NG	5.46	5.19
tblLandUse	BuildingSpaceSquareFeet	66,330.49	46,270.00
tblLandUse	LandUseSquareFeet	66,330.49	46,270.00
tblLandUse	LotAcreage	1.52	0.60
tblProjectCharacteristics	CO2IntensityFactor	720.49	493.5
tblProjectCharacteristics	OperationalYear	2018	2021
tblSolidWaste	SolidWasteGenerationRate	91.25	45.63
tblVehicleTrips	WD_TR	1.71	1.30
tblWater	AerobicPercent	87.46	97.54
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	2.46
tblWater	IndoorWaterUseRate	2,202,480.00	1,761,984.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.8174	54.5750	33.9956	0.0638	8.8376	2.3838	11.2215	3.6401	2.1931	5.8332	0.0000	6,314.0594	6,314.0594	1.9482	0.0000	6,362.7643
2020	47.3442	50.2470	41.7420	0.0985	8.8376	2.1751	11.0127	3.6401	2.0011	5.6411	0.0000	9,829.4100	9,829.4100	1.9475	0.0000	9,869.7468
Maximum	**47.3442**	**54.5750**	**41.7420**	**0.0985**	**8.8376**	**2.3838**	**11.2215**	**3.6401**	**2.1931**	**5.8332**	**0.0000**	**9,829.4100**	**9,829.4100**	**1.9482**	**0.0000**	**9,869.7468**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.6016	30.0330	37.3414	0.0638	3.5469	1.3006	4.8475	1.4462	1.3005	2.7467	0.0000	6,314.0594	6,314.0594	1.9482	0.0000	6,362.7643
2020	45.7155	37.1091	45.4109	0.0985	3.5469	1.5816	4.8475	1.4462	1.5780	2.7467	0.0000	9,829.4100	9,829.4100	1.9475	0.0000	9,869.7468
Maximum	**45.7155**	**37.1091**	**45.4109**	**0.0985**	**3.5469**	**1.5816**	**4.8475**	**1.4462**	**1.5780**	**2.7467**	**0.0000**	**9,829.4100**	**9,829.4100**	**1.9482**	**0.0000**	**9,869.7468**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**9.29**	**35.95**	**-9.26**	**0.00**	**59.87**	**36.78**	**56.40**	**60.27**	**31.37**	**52.12**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5855	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196
Energy	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636
Mobile	1.1107	4.4739	12.6906	0.0432	3.6086	0.0352	3.6438	0.9645	0.0329	0.9974		4,382.3892	4,382.3892	0.2268		4,388.0584
Total	**2.7039**	**4.5448**	**12.8023**	**0.0436**	**3.6086**	**0.0408**	**3.6493**	**0.9645**	**0.0385**	**1.0029**		**4,467.0625**	**4,467.0625**	**0.2287**	**1.5500e-003**	**4,473.2416**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5855	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196
Energy	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636
Mobile	1.1107	4.4739	12.6906	0.0432	3.6086	0.0352	3.6438	0.9645	0.0329	0.9974		4,382.3892	4,382.3892	0.2268		4,388.0584
Total	**2.7039**	**4.5448**	**12.8023**	**0.0436**	**3.6086**	**0.0408**	**3.6493**	**0.9645**	**0.0385**	**1.0029**		**4,467.0625**	**4,467.0625**	**0.2287**	**1.5500e-003**	**4,473.2416**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/1/2019	1/31/2020	5	110	
2	Building Construction	Building Construction	2/1/2020	12/31/2020	5	239	
3	Paving	Paving	2/1/2020	2/28/2020	5	20	
4	Architectural Coating	Architectural Coating	12/4/2020	12/31/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 12.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 69,405; Non-Residential Outdoor: 23,135; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	50.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	248.00	97.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**		**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0785	0.0548	0.6188	1.7500e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		174.0399	174.0399	5.5600e-003		174.1789
Total	**0.0785**	**0.0548**	**0.6188**	**1.7500e-003**	**0.1643**	**1.1700e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**174.0399**	**174.0399**	**5.5600e-003**		**174.1789**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	1.5231	29.9782	36.7226	0.0620		1.2994	1.2994		1.2994	1.2994	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**1.5231**	**29.9782**	**36.7226**	**0.0620**	**3.3826**	**1.2994**	**4.6820**	**1.4026**	**1.2994**	**2.7021**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0785	0.0548	0.6188	1.7500e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		174.0399	174.0399	5.5600e-003		174.1789
Total	**0.0785**	**0.0548**	**0.6188**	**1.7500e-003**	**0.1643**	**1.1700e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**174.0399**	**174.0399**	**5.5600e-003**		**174.1789**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0734	0.0495	0.5669	1.6900e-003	0.1643	1.1500e-003	0.1655	0.0436	1.0600e-003	0.0446		168.5494	168.5494	5.0300e-003		168.6752
Total	**0.0734**	**0.0495**	**0.5669**	**1.6900e-003**	**0.1643**	**1.1500e-003**	**0.1655**	**0.0436**	**1.0600e-003**	**0.0446**		**168.5494**	**168.5494**	**5.0300e-003**		**168.6752**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	1.5231	29.9782	36.7226	0.0620		1.2994	1.2994		1.2994	1.2994	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**1.5231**	**29.9782**	**36.7226**	**0.0620**	**3.3826**	**1.2994**	**4.6820**	**1.4026**	**1.2994**	**2.7021**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0734	0.0495	0.5669	1.6900e-003	0.1643	1.1500e-003	0.1655	0.0436	1.0600e-003	0.0446		168.5494	168.5494	5.0300e-003		168.6752
Total	**0.0734**	**0.0495**	**0.5669**	**1.6900e-003**	**0.1643**	**1.1500e-003**	**0.1655**	**0.0436**	**1.0600e-003**	**0.0446**		**168.5494**	**168.5494**	**5.0300e-003**		**168.6752**

3.3 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3625	10.9376	2.7865	0.0266	0.6567	0.0535	0.7102	0.1890	0.0512	0.2402		2,852.1888	2,852.1888	0.2104		2,857.4489
Worker	0.9101	0.6132	7.0298	0.0210	2.0373	0.0143	2.0516	0.5404	0.0132	0.5536		2,090.0127	2,090.0127	0.0624		2,091.5729
Total	**1.2725**	**11.5507**	**9.8162**	**0.0475**	**2.6939**	**0.0678**	**2.7617**	**0.7294**	**0.0644**	**0.7938**		**4,942.2015**	**4,942.2015**	**0.2728**		**4,949.0218**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3625	10.9376	2.7865	0.0266	0.6567	0.0535	0.7102	0.1890	0.0512	0.2402		2,852.1888	2,852.1888	0.2104		2,857.4489
Worker	0.9101	0.6132	7.0298	0.0210	2.0373	0.0143	2.0516	0.5404	0.0132	0.5536		2,090.0127	2,090.0127	0.0624		2,091.5729
Total	**1.2725**	**11.5507**	**9.8162**	**0.0475**	**2.6939**	**0.0678**	**2.7617**	**0.7294**	**0.0644**	**0.7938**		**4,942.2015**	**4,942.2015**	**0.2728**		**4,949.0218**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.4585					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8151**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064
Total	**0.0550**	**0.0371**	**0.4252**	**1.2700e-003**	**0.1232**	**8.6000e-004**	**0.1241**	**0.0327**	**8.0000e-004**	**0.0335**		**126.4121**	**126.4121**	**3.7700e-003**		**126.5064**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0228		0.6093	0.6093		0.6093	0.6093	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.4585					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0194**	**11.2952**	**17.2957**	**0.0228**		**0.6093**	**0.6093**		**0.6093**	**0.6093**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0550	0.0371	0.4252	1.2700e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		126.4121	126.4121	3.7700e-003		126.5064
Total	**0.0550**	**0.0371**	**0.4252**	**1.2700e-003**	**0.1232**	**8.6000e-004**	**0.1241**	**0.0327**	**8.0000e-004**	**0.0335**		**126.4121**	**126.4121**	**3.7700e-003**		**126.5064**

3.5 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	43.5261					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**43.7683**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1835	0.1236	1.4173	4.2300e-003	0.4107	2.8800e-003	0.4136	0.1090	2.6600e-003	0.1116		421.3735	421.3735	0.0126		421.6881
Total	**0.1835**	**0.1236**	**1.4173**	**4.2300e-003**	**0.4107**	**2.8800e-003**	**0.4136**	**0.1090**	**2.6600e-003**	**0.1116**		**421.3735**	**421.3735**	**0.0126**		**421.6881**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	43.5261					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**43.5856**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1835	0.1236	1.4173	4.2300e-003	0.4107	2.8800e-003	0.4136	0.1090	2.6600e-003	0.1116		421.3735	421.3735	0.0126		421.6881
Total	**0.1835**	**0.1236**	**1.4173**	**4.2300e-003**	**0.4107**	**2.8800e-003**	**0.4136**	**0.1090**	**2.6600e-003**	**0.1116**		**421.3735**	**421.3735**	**0.0126**		**421.6881**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1107	4.4739	12.6906	0.0432	3.6086	0.0352	3.6438	0.9645	0.0329	0.9974		4,382.3892	4,382.3892	0.2268		4,388.0584
Unmitigated	1.1107	4.4739	12.6906	0.0432	3.6086	0.0352	3.6438	0.9645	0.0329	0.9974		4,382.3892	4,382.3892	0.2268		4,388.0584

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	650.00	305.00	125.00	1,376,405	1,376,405
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	650.00	305.00	125.00	1,376,405	1,376,405

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Other Asphalt Surfaces	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Other Non-Asphalt Surfaces	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Parking Lot	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636
NaturalGas Unmitigated	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	718.77	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.7500e-003**	**0.0705**	**0.0592**	**4.2000e-004**		**5.3600e-003**	**5.3600e-003**		**5.3600e-003**	**5.3600e-003**		**84.5611**	**84.5611**	**1.6200e-003**	**1.5500e-003**	**85.0636**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	0.71877	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.7500e-003**	**0.0705**	**0.0592**	**4.2000e-004**		**5.3600e-003**	**5.3600e-003**		**5.3600e-003**	**5.3600e-003**		**84.5611**	**84.5611**	**1.6200e-003**	**1.5500e-003**	**85.0636**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5855	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196
Unmitigated	1.5855	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3975					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.9100e-003	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196
Total	**1.5855**	**4.8000e-004**	**0.0525**	**0.0000**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**		**0.1122**	**0.1122**	**3.0000e-004**		**0.1196**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3975					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.9100e-003	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196
Total	**1.5855**	**4.8000e-004**	**0.0525**	**0.0000**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**		**0.1122**	**0.1122**	**3.0000e-004**		**0.1196**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Bonsall New High School Phase 1 Construction & Operation

San Diego Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	500.00	Student	0.60	46,270.00	0
Other Asphalt Surfaces	1.80	Acre	1.80	78,408.00	0
Other Non-Asphalt Surfaces	9.00	Acre	9.00	392,040.00	0
Parking Lot	1.70	Acre	1.70	74,052.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	493.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - See Assumptions

Construction Phase - See Assumptions

Grading -

Architectural Coating - See Assumptions

Vehicle Trips - See Assumptions

Energy Use - See Assumptions

Water And Wastewater - See Assumptions

Solid Waste - See Assumptions

Construction Off-road Equipment Mitigation - See Assumptions

Water Mitigation - See Assumptions

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Parking	250.00	150.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	300.00	239.00
tblConstructionPhase	NumDays	30.00	110.00
tblConstructionPhase	PhaseEndDate	2/25/2021	12/31/2020
tblConstructionPhase	PhaseEndDate	11/29/2019	1/31/2020
tblConstructionPhase	PhaseEndDate	1/28/2021	2/28/2020
tblConstructionPhase	PhaseStartDate	1/29/2021	12/4/2020
tblConstructionPhase	PhaseStartDate	11/30/2019	2/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2021	2/1/2020
tblEnergyUse	LightingElect	2.61	2.48
tblEnergyUse	LightingElect	0.88	0.84
tblEnergyUse	T24E	1.60	1.52
tblEnergyUse	T24NG	5.46	5.19
tblLandUse	BuildingSpaceSquareFeet	66,330.49	46,270.00
tblLandUse	LandUseSquareFeet	66,330.49	46,270.00
tblLandUse	LotAcreage	1.52	0.60
tblProjectCharacteristics	CO2IntensityFactor	720.49	493.5
tblProjectCharacteristics	OperationalYear	2018	2021
tblSolidWaste	SolidWasteGenerationRate	91.25	45.63
tblVehicleTrips	WD_TR	1.71	1.30
tblWater	AerobicPercent	87.46	97.54
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	2.46
tblWater	IndoorWaterUseRate	2,202,480.00	1,761,984.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	4.8277	54.5817	33.9616	0.0636	8.8376	2.3838	11.2215	3.6401	2.1931	5.8332	0.0000	6,303.4022	6,303.4022	1.9479	0.0000	6,352.1000
2020	47.5063	50.2530	41.6216	0.0965	8.8376	2.1751	11.0127	3.6401	2.0011	5.6411	0.0000	9,620.1570	9,620.1570	1.9472	0.0000	9,660.7350
Maximum	**47.5063**	**54.5817**	**41.6216**	**0.0965**	**8.8376**	**2.3838**	**11.2215**	**3.6401**	**2.1931**	**5.8332**	**0.0000**	**9,620.1570**	**9,620.1570**	**1.9479**	**0.0000**	**9,660.7350**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.6119	30.0398	37.3074	0.0636	3.5469	1.3006	4.8475	1.4462	1.3005	2.7467	0.0000	6,303.4022	6,303.4022	1.9479	0.0000	6,352.1000
2020	45.8776	37.1801	45.2904	0.0965	3.5469	1.5826	4.8475	1.4462	1.5790	2.7467	0.0000	9,620.1570	9,620.1570	1.9472	0.0000	9,660.7350
Maximum	**45.8776**	**37.1801**	**45.2904**	**0.0965**	**3.5469**	**1.5826**	**4.8475**	**1.4462**	**1.5790**	**2.7467**	**0.0000**	**9,620.1570**	**9,620.1570**	**1.9479**	**0.0000**	**9,660.7350**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**9.26**	**35.88**	**-9.28**	**0.00**	**59.87**	**36.76**	**56.40**	**60.27**	**31.34**	**52.12**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5855	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196
Energy	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636
Mobile	1.0783	4.5978	12.5164	0.0409	3.6086	0.0355	3.6441	0.9645	0.0332	0.9976		4,155.6579	4,155.6579	0.2280		4,161.3568
Total	**2.6715**	**4.6688**	**12.6281**	**0.0413**	**3.6086**	**0.0410**	**3.6496**	**0.9645**	**0.0387**	**1.0032**		**4,240.3312**	**4,240.3312**	**0.2299**	**1.5500e-003**	**4,246.5401**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5855	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196
Energy	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636
Mobile	1.0783	4.5978	12.5164	0.0409	3.6086	0.0355	3.6441	0.9645	0.0332	0.9976		4,155.6579	4,155.6579	0.2280		4,161.3568
Total	**2.6715**	**4.6688**	**12.6281**	**0.0413**	**3.6086**	**0.0410**	**3.6496**	**0.9645**	**0.0387**	**1.0032**		**4,240.3312**	**4,240.3312**	**0.2299**	**1.5500e-003**	**4,246.5401**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/1/2019	1/31/2020	5	110	
2	Building Construction	Building Construction	2/1/2020	12/31/2020	5	239	
3	Paving	Paving	2/1/2020	2/28/2020	5	20	
4	Architectural Coating	Architectural Coating	12/4/2020	12/31/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 12.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 69,405; Non-Residential Outdoor: 23,135; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	50.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	248.00	97.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.7389	54.5202	33.3768	0.0620		2.3827	2.3827		2.1920	2.1920		6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**4.7389**	**54.5202**	**33.3768**	**0.0620**	**8.6733**	**2.3827**	**11.0560**	**3.5965**	**2.1920**	**5.7885**		**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0888	0.0616	0.5848	1.6400e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		163.3828	163.3828	5.2700e-003		163.5146
Total	**0.0888**	**0.0616**	**0.5848**	**1.6400e-003**	**0.1643**	**1.1700e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**163.3828**	**163.3828**	**5.2700e-003**		**163.5146**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	1.5231	29.9782	36.7226	0.0620		1.2994	1.2994		1.2994	1.2994	0.0000	6,140.0195	6,140.0195	1.9426		6,188.5854
Total	**1.5231**	**29.9782**	**36.7226**	**0.0620**	**3.3826**	**1.2994**	**4.6820**	**1.4026**	**1.2994**	**2.7021**	**0.0000**	**6,140.0195**	**6,140.0195**	**1.9426**		**6,188.5854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0888	0.0616	0.5848	1.6400e-003	0.1643	1.1700e-003	0.1655	0.0436	1.0800e-003	0.0447		163.3828	163.3828	5.2700e-003		163.5146
Total	**0.0888**	**0.0616**	**0.5848**	**1.6400e-003**	**0.1643**	**1.1700e-003**	**0.1655**	**0.0436**	**1.0800e-003**	**0.0447**		**163.3828**	**163.3828**	**5.2700e-003**		**163.5146**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0831	0.0555	0.5345	1.5900e-003	0.1643	1.1500e-003	0.1655	0.0436	1.0600e-003	0.0446		158.2264	158.2264	4.7600e-003		158.3455
Total	**0.0831**	**0.0555**	**0.5345**	**1.5900e-003**	**0.1643**	**1.1500e-003**	**0.1655**	**0.0436**	**1.0600e-003**	**0.0446**		**158.2264**	**158.2264**	**4.7600e-003**		**158.3455**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	1.5231	29.9782	36.7226	0.0620		1.2994	1.2994		1.2994	1.2994	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**1.5231**	**29.9782**	**36.7226**	**0.0620**	**3.3826**	**1.2994**	**4.6820**	**1.4026**	**1.2994**	**2.7021**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0831	0.0555	0.5345	1.5900e-003	0.1643	1.1500e-003	0.1655	0.0436	1.0600e-003	0.0446		158.2264	158.2264	4.7600e-003		158.3455
Total	**0.0831**	**0.0555**	**0.5345**	**1.5900e-003**	**0.1643**	**1.1500e-003**	**0.1655**	**0.0436**	**1.0600e-003**	**0.0446**		**158.2264**	**158.2264**	**4.7600e-003**		**158.3455**

3.3 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3796	10.9287	3.0924	0.0259	0.6567	0.0545	0.7112	0.1890	0.0522	0.2412		2,778.6835	2,778.6835	0.2236		2,784.2733
Worker	1.0307	0.6885	6.6277	0.0197	2.0373	0.0143	2.0516	0.5404	0.0132	0.5536		1,962.0072	1,962.0072	0.0591		1,963.4840
Total	**1.4103**	**11.6172**	**9.7201**	**0.0456**	**2.6939**	**0.0688**	**2.7627**	**0.7294**	**0.0653**	**0.7947**		**4,740.6907**	**4,740.6907**	**0.2827**		**4,747.7573**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3796	10.9287	3.0924	0.0259	0.6567	0.0545	0.7112	0.1890	0.0522	0.2412		2,778.6835	2,778.6835	0.2236		2,784.2733
Worker	1.0307	0.6885	6.6277	0.0197	2.0373	0.0143	2.0516	0.5404	0.0132	0.5536		1,962.0072	1,962.0072	0.0591		1,963.4840
Total	**1.4103**	**11.6172**	**9.7201**	**0.0456**	**2.6939**	**0.0688**	**2.7627**	**0.7294**	**0.0653**	**0.7947**		**4,740.6907**	**4,740.6907**	**0.2827**		**4,747.7573**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3566	14.0656	14.6521	0.0228		0.7528	0.7528		0.6926	0.6926		2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.4585					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8151**	**14.0656**	**14.6521**	**0.0228**		**0.7528**	**0.7528**		**0.6926**	**0.6926**		**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591
Total	**0.0623**	**0.0416**	**0.4009**	**1.1900e-003**	**0.1232**	**8.6000e-004**	**0.1241**	**0.0327**	**8.0000e-004**	**0.0335**		**118.6698**	**118.6698**	**3.5700e-003**		**118.7591**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0228		0.6093	0.6093		0.6093	0.6093	0.0000	2,207.7334	2,207.7334	0.7140		2,225.5841
Paving	0.4585					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0194**	**11.2952**	**17.2957**	**0.0228**		**0.6093**	**0.6093**		**0.6093**	**0.6093**	**0.0000**	**2,207.7334**	**2,207.7334**	**0.7140**		**2,225.5841**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0623	0.0416	0.4009	1.1900e-003	0.1232	8.6000e-004	0.1241	0.0327	8.0000e-004	0.0335		118.6698	118.6698	3.5700e-003		118.7591
Total	**0.0623**	**0.0416**	**0.4009**	**1.1900e-003**	**0.1232**	**8.6000e-004**	**0.1241**	**0.0327**	**8.0000e-004**	**0.0335**		**118.6698**	**118.6698**	**3.5700e-003**		**118.7591**

3.5 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	43.5261					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**43.7683**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2078	0.1388	1.3362	3.9700e-003	0.4107	2.8800e-003	0.4136	0.1090	2.6600e-003	0.1116		395.5660	395.5660	0.0119		395.8637
Total	**0.2078**	**0.1388**	**1.3362**	**3.9700e-003**	**0.4107**	**2.8800e-003**	**0.4136**	**0.1090**	**2.6600e-003**	**0.1116**		**395.5660**	**395.5660**	**0.0119**		**395.8637**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	43.5261					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**43.5856**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2078	0.1388	1.3362	3.9700e-003	0.4107	2.8800e-003	0.4136	0.1090	2.6600e-003	0.1116		395.5660	395.5660	0.0119		395.8637
Total	**0.2078**	**0.1388**	**1.3362**	**3.9700e-003**	**0.4107**	**2.8800e-003**	**0.4136**	**0.1090**	**2.6600e-003**	**0.1116**		**395.5660**	**395.5660**	**0.0119**		**395.8637**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0783	4.5978	12.5164	0.0409	3.6086	0.0355	3.6441	0.9645	0.0332	0.9976		4,155.6579	4,155.6579	0.2280		4,161.3568
Unmitigated	1.0783	4.5978	12.5164	0.0409	3.6086	0.0355	3.6441	0.9645	0.0332	0.9976		4,155.6579	4,155.6579	0.2280		4,161.3568

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	650.00	305.00	125.00	1,376,405	1,376,405
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	650.00	305.00	125.00	1,376,405	1,376,405

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Other Asphalt Surfaces	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Other Non-Asphalt Surfaces	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Parking Lot	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636
NaturalGas Unmitigated	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	718.77	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.7500e-003**	**0.0705**	**0.0592**	**4.2000e-004**		**5.3600e-003**	**5.3600e-003**		**5.3600e-003**	**5.3600e-003**		**84.5611**	**84.5611**	**1.6200e-003**	**1.5500e-003**	**85.0636**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	0.71877	7.7500e-003	0.0705	0.0592	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003		84.5611	84.5611	1.6200e-003	1.5500e-003	85.0636
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.7500e-003**	**0.0705**	**0.0592**	**4.2000e-004**		**5.3600e-003**	**5.3600e-003**		**5.3600e-003**	**5.3600e-003**		**84.5611**	**84.5611**	**1.6200e-003**	**1.5500e-003**	**85.0636**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5855	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196
Unmitigated	1.5855	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3975					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.9100e-003	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196
Total	**1.5855**	**4.8000e-004**	**0.0525**	**0.0000**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**		**0.1122**	**0.1122**	**3.0000e-004**		**0.1196**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.3975					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	4.9100e-003	4.8000e-004	0.0525	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1122	0.1122	3.0000e-004		0.1196
Total	**1.5855**	**4.8000e-004**	**0.0525**	**0.0000**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**		**0.1122**	**0.1122**	**3.0000e-004**		**0.1196**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Bonsall New High School Phase 2 Construction

San Diego Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	1,000.00	Student	2.60	104,230.00	0
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Parking Lot	1.40	Acre	1.40	60,984.00	0
Other Non-Asphalt Surfaces	21.50	Acre	21.50	936,540.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	493.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - See Assumptions

Construction Phase - See Assumptions

Grading -

Vehicle Trips - See Assumptions

Energy Use - See Assumptions

Water And Wastewater -

Solid Waste - See Assumptions

Construction Off-road Equipment Mitigation - See Assumptions

Water Mitigation - See Assumptions

Architectural Coating - See Assumptions

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Parking	250.00	150.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	440.00	283.00
tblConstructionPhase	PhaseEndDate	6/27/2024	1/31/2024
tblConstructionPhase	PhaseEndDate	5/2/2024	1/31/2024
tblConstructionPhase	PhaseEndDate	5/30/2024	2/17/2023

tblConstructionPhase	PhaseStartDate	5/31/2024	12/14/2023
tblConstructionPhase	PhaseStartDate	4/1/2023	1/1/2023
tblConstructionPhase	PhaseStartDate	5/3/2024	1/1/2023
tblLandUse	BuildingSpaceSquareFeet	132,660.98	104,230.00
tblLandUse	LandUseSquareFeet	132,660.98	104,230.00
tblLandUse	LotAcreage	3.05	2.60
tblProjectCharacteristics	CO2IntensityFactor	720.49	493.5
tblProjectCharacteristics	OperationalYear	2018	2025
tblVehicleTrips	WD_TR	1.71	1.30

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	57.7758	39.7474	46.4245	0.1363	6.0126	1.2537	6.8313	1.6236	1.1687	2.6158	0.0000	13,794.2071	13,794.2071	1.7659	0.0000	13,838.3546
2024	57.5597	29.6973	34.4373	0.1205	6.0126	0.7214	6.7340	1.6236	0.6818	2.3055	0.0000	12,274.2007	12,274.2007	1.0670	0.0000	12,300.8757
Maximum	**57.7758**	**39.7474**	**46.4245**	**0.1363**	**6.0126**	**1.2537**	**6.8313**	**1.6236**	**1.1687**	**2.6158**	**0.0000**	**13,794.2071**	**13,794.2071**	**1.7659**	**0.0000**	**13,838.3546**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	56.7448	40.6922	50.7657	0.1363	6.0126	1.5567	7.0594	1.6236	1.5538	3.0009	0.0000	13,794.2071	13,794.2071	1.7659	0.0000	13,838.3546
2024	56.6407	30.6178	36.1665	0.1205	6.0126	1.0458	7.0584	1.6236	1.0427	2.6663	0.0000	12,274.2007	12,274.2007	1.0670	0.0000	12,300.8757
Maximum	**56.7448**	**40.6922**	**50.7657**	**0.1363**	**6.0126**	**1.5567**	**7.0594**	**1.6236**	**1.5538**	**3.0009**	**0.0000**	**13,794.2071**	**13,794.2071**	**1.7659**	**0.0000**	**13,838.3546**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	1.69	-2.69	-7.51	0.00	0.00	-31.76	-4.07	0.00	-40.31	-15.16	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/1/2023	1/31/2024	5	283	
2	Paving	Paving	1/1/2023	2/17/2023	5	35	
3	Architectural Coating	Architectural Coating	12/14/2023	1/31/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 23.9

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 156,345; Non-Residential Outdoor: 52,115; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	96.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	481.00	188.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4076	14.2427	4.2325	0.0490	1.2727	0.0168	1.2895	0.3664	0.0160	0.3824		5,288.7602	5,288.7602	0.3473		5,297.4436
Worker	1.4893	0.9001	11.0201	0.0364	3.9513	0.0262	3.9775	1.0481	0.0241	1.0722		3,629.4677	3,629.4677	0.0938		3,631.8132
Total	**1.8969**	**15.1428**	**15.2526**	**0.0854**	**5.2240**	**0.0430**	**5.2669**	**1.4144**	**0.0401**	**1.4546**		**8,918.2280**	**8,918.2280**	**0.4412**		**8,929.2567**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4076	14.2427	4.2325	0.0490	1.2727	0.0168	1.2895	0.3664	0.0160	0.3824		5,288.7602	5,288.7602	0.3473		5,297.4436
Worker	1.4893	0.9001	11.0201	0.0364	3.9513	0.0262	3.9775	1.0481	0.0241	1.0722		3,629.4677	3,629.4677	0.0938		3,631.8132
Total	**1.8969**	**15.1428**	**15.2526**	**0.0854**	**5.2240**	**0.0430**	**5.2669**	**1.4144**	**0.0401**	**1.4546**		**8,918.2280**	**8,918.2280**	**0.4412**		**8,929.2567**

3.2 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3932	14.0442	4.1005	0.0486	1.2727	0.0164	1.2891	0.3664	0.0157	0.3820		5,254.7436	5,254.7436	0.3433		5,263.3271
Worker	1.4145	0.8258	10.3035	0.0350	3.9513	0.0257	3.9770	1.0481	0.0237	1.0717		3,486.4665	3,486.4665	0.0863		3,488.6227
Total	**1.8078**	**14.8699**	**14.4040**	**0.0836**	**5.2240**	**0.0421**	**5.2661**	**1.4144**	**0.0393**	**1.4537**		**8,741.2101**	**8,741.2101**	**0.4296**		**8,751.9498**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.6739**	**14.2261**	**17.8738**	**0.0270**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3932	14.0442	4.1005	0.0486	1.2727	0.0164	1.2891	0.3664	0.0157	0.3820		5,254.7436	5,254.7436	0.3433		5,263.3271
Worker	1.4145	0.8258	10.3035	0.0350	3.9513	0.0257	3.9770	1.0481	0.0237	1.0717		3,486.4665	3,486.4665	0.0863		3,488.6227
Total	**1.8078**	**14.8699**	**14.4040**	**0.0836**	**5.2240**	**0.0421**	**5.2661**	**1.4144**	**0.0393**	**1.4537**		**8,741.2101**	**8,741.2101**	**0.4296**		**8,751.9498**

3.3 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.1797					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2124**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0464	0.0281	0.3437	1.1400e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		113.1851	113.1851	2.9300e-003		113.2582
Total	**0.0464**	**0.0281**	**0.3437**	**1.1400e-003**	**0.1232**	**8.2000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**113.1851**	**113.1851**	**2.9300e-003**		**113.2582**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0228		0.6093	0.6093		0.6093	0.6093	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.1797					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7406**	**11.2952**	**17.2957**	**0.0228**		**0.6093**	**0.6093**		**0.6093**	**0.6093**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0464	0.0281	0.3437	1.1400e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		113.1851	113.1851	2.9300e-003		113.2582
Total	**0.0464**	**0.0281**	**0.3437**	**1.1400e-003**	**0.1232**	**8.2000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**113.1851**	**113.1851**	**2.9300e-003**		**113.2582**

3.4 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	53.8173					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**54.0090**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2972	0.1797	2.1994	7.2700e-003	0.7886	5.2200e-003	0.7938	0.2092	4.8100e-003	0.2140		724.3844	724.3844	0.0187		724.8525
Total	**0.2972**	**0.1797**	**2.1994**	**7.2700e-003**	**0.7886**	**5.2200e-003**	**0.7938**	**0.2092**	**4.8100e-003**	**0.2140**		**724.3844**	**724.3844**	**0.0187**		**724.8525**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	53.8173					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**53.8768**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2972	0.1797	2.1994	7.2700e-003	0.7886	5.2200e-003	0.7938	0.2092	4.8100e-003	0.2140		724.3844	724.3844	0.0187		724.8525
Total	**0.2972**	**0.1797**	**2.1994**	**7.2700e-003**	**0.7886**	**5.2200e-003**	**0.7938**	**0.2092**	**4.8100e-003**	**0.2140**		**724.3844**	**724.3844**	**0.0187**		**724.8525**

3.4 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	53.8173					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**53.9981**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2823	0.1648	2.0564	6.9800e-003	0.7886	5.1300e-003	0.7938	0.2092	4.7200e-003	0.2139		695.8436	695.8436	0.0172		696.2740
Total	**0.2823**	**0.1648**	**2.0564**	**6.9800e-003**	**0.7886**	**5.1300e-003**	**0.7938**	**0.2092**	**4.7200e-003**	**0.2139**		**695.8436**	**695.8436**	**0.0172**		**696.2740**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	53.8173					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**53.8768**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2823	0.1648	2.0564	6.9800e-003	0.7886	5.1300e-003	0.7938	0.2092	4.7200e-003	0.2139		695.8436	695.8436	0.0172		696.2740
Total	**0.2823**	**0.1648**	**2.0564**	**6.9800e-003**	**0.7886**	**5.1300e-003**	**0.7938**	**0.2092**	**4.7200e-003**	**0.2139**		**695.8436**	**695.8436**	**0.0172**		**696.2740**

Bonsall New High School Phase 2 Construction

San Diego Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	1,000.00	Student	2.60	104,230.00	0
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Parking Lot	1.40	Acre	1.40	60,984.00	0
Other Non-Asphalt Surfaces	21.50	Acre	21.50	936,540.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	493.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - See Assumptions

Construction Phase - See Assumptions

Grading -

Vehicle Trips - See Assumptions

Energy Use - See Assumptions

Water And Wastewater -

Solid Waste - See Assumptions

Construction Off-road Equipment Mitigation - See Assumptions

Water Mitigation - See Assumptions

Architectural Coating - See Assumptions

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Parking	250.00	150.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	440.00	283.00
tblConstructionPhase	PhaseEndDate	6/27/2024	1/31/2024
tblConstructionPhase	PhaseEndDate	5/2/2024	1/31/2024
tblConstructionPhase	PhaseEndDate	5/30/2024	2/17/2023

tblConstructionPhase	PhaseStartDate	5/31/2024	12/14/2023
tblConstructionPhase	PhaseStartDate	4/1/2023	1/1/2023
tblConstructionPhase	PhaseStartDate	5/3/2024	1/1/2023
tblLandUse	BuildingSpaceSquareFeet	132,660.98	104,230.00
tblLandUse	LandUseSquareFeet	132,660.98	104,230.00
tblLandUse	LotAcreage	3.05	2.60
tblProjectCharacteristics	CO2IntensityFactor	720.49	493.5
tblProjectCharacteristics	OperationalYear	2018	2025
tblVehicleTrips	WD_TR	1.71	1.30

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	58.0486	39.7970	46.1102	0.1327	6.0126	1.2546	6.8323	1.6236	1.1696	2.6167	0.0000	13,428.94 26	13,428.942 6	1.7793	0.0000	13,473.42 43
2024	57.8248	29.7551	34.0256	0.1167	6.0126	0.7223	6.7349	1.6236	0.6826	2.3063	0.0000	11,884.01 01	11,884.010 1	1.0791	0.0000	11,910.98 70
Maximum	**58.0486**	**39.7970**	**46.1102**	**0.1327**	**6.0126**	**1.2546**	**6.8323**	**1.6236**	**1.1696**	**2.6167**	**0.0000**	**13,428.94 26**	**13,428.942 6**	**1.7793**	**0.0000**	**13,473.42 43**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	57.0175	40.7418	50.4514	0.1327	6.0126	1.5576	7.0604	1.6236	1.5547	3.0018	0.0000	13,428.94 26	13,428.942 6	1.7793	0.0000	13,473.42 43
2024	56.9058	30.6756	35.7548	0.1167	6.0126	1.0467	7.0593	1.6236	1.0435	2.6671	0.0000	11,884.01 01	11,884.010 1	1.0791	0.0000	11,910.98 70
Maximum	**57.0175**	**40.7418**	**50.4514**	**0.1327**	**6.0126**	**1.5576**	**7.0604**	**1.6236**	**1.5547**	**3.0018**	**0.0000**	**13,428.94 26**	**13,428.942 6**	**1.7793**	**0.0000**	**13,473.42 43**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	1.68	-2.68	-7.58	0.00	0.00	-31.73	-4.07	0.00	-40.27	-15.15	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/1/2023	1/31/2024	5	283	
2	Paving	Paving	1/1/2023	2/17/2023	5	35	
3	Architectural Coating	Architectural Coating	12/14/2023	1/31/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 23.9

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 156,345; Non-Residential Outdoor: 52,115; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	96.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	481.00	188.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4303	14.1792	4.6458	0.0477	1.2727	0.0177	1.2904	0.3664	0.0169	0.3833		5,152.5033	5,152.5033	0.3663		5,161.6604
Worker	1.6977	1.0098	10.3145	0.0342	3.9513	0.0262	3.9775	1.0481	0.0241	1.0722		3,407.3857	3,407.3857	0.0884		3,409.5959
Total	**2.1280**	**15.1890**	**14.9603**	**0.0819**	**5.2240**	**0.0439**	**5.2679**	**1.4144**	**0.0410**	**1.4555**		**8,559.8891**	**8,559.8891**	**0.4547**		**8,571.2563**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.6739**	**14.2261**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4303	14.1792	4.6458	0.0477	1.2727	0.0177	1.2904	0.3664	0.0169	0.3833		5,152.5033	5,152.5033	0.3663		5,161.6604
Worker	1.6977	1.0098	10.3145	0.0342	3.9513	0.0262	3.9775	1.0481	0.0241	1.0722		3,407.3857	3,407.3857	0.0884		3,409.5959
Total	**2.1280**	**15.1890**	**14.9603**	**0.0819**	**5.2240**	**0.0439**	**5.2679**	**1.4144**	**0.0410**	**1.4555**		**8,559.8891**	**8,559.8891**	**0.4547**		**8,571.2563**

3.2 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4149	13.9815	4.4982	0.0474	1.2727	0.0172	1.2899	0.3664	0.0164	0.3828		5,120.3093	5,120.3093	0.3615		5,129.3467
Worker	1.6175	0.9261	9.6288	0.0328	3.9513	0.0257	3.9770	1.0481	0.0237	1.0717		3,273.2624	3,273.2624	0.0812		3,275.2919
Total	**2.0324**	**14.9077**	**14.1269**	**0.0802**	**5.2240**	**0.0429**	**5.2669**	**1.4144**	**0.0401**	**1.4545**		**8,393.5717**	**8,393.5717**	**0.4427**		**8,404.6386**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6739	14.2261	17.8738	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.6739**	**14.2261**	**17.8738**	**0.0270**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4149	13.9815	4.4982	0.0474	1.2727	0.0172	1.2899	0.3664	0.0164	0.3828		5,120.3093	5,120.3093	0.3615		5,129.3467
Worker	1.6175	0.9261	9.6288	0.0328	3.9513	0.0257	3.9770	1.0481	0.0237	1.0717		3,273.2624	3,273.2624	0.0812		3,275.2919
Total	**2.0324**	**14.9077**	**14.1269**	**0.0802**	**5.2240**	**0.0429**	**5.2669**	**1.4144**	**0.0401**	**1.4545**		**8,393.5717**	**8,393.5717**	**0.4427**		**8,404.6386**

3.3 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.1797					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2124**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0529	0.0315	0.3217	1.0700e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		106.2594	106.2594	2.7600e-003		106.3284
Total	**0.0529**	**0.0315**	**0.3217**	**1.0700e-003**	**0.1232**	**8.2000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**106.2594**	**106.2594**	**2.7600e-003**		**106.3284**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5609	11.2952	17.2957	0.0228		0.6093	0.6093		0.6093	0.6093	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.1797					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7406**	**11.2952**	**17.2957**	**0.0228**		**0.6093**	**0.6093**		**0.6093**	**0.6093**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0529	0.0315	0.3217	1.0700e-003	0.1232	8.2000e-004	0.1240	0.0327	7.5000e-004	0.0334		106.2594	106.2594	2.7600e-003		106.3284
Total	**0.0529**	**0.0315**	**0.3217**	**1.0700e-003**	**0.1232**	**8.2000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**106.2594**	**106.2594**	**2.7600e-003**		**106.3284**

3.4 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	53.8173					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**54.0090**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3388	0.2015	2.0586	6.8200e-003	0.7886	5.2200e-003	0.7938	0.2092	4.8100e-003	0.2140		680.0604	680.0604	0.0176		680.5015
Total	**0.3388**	**0.2015**	**2.0586**	**6.8200e-003**	**0.7886**	**5.2200e-003**	**0.7938**	**0.2092**	**4.8100e-003**	**0.2140**		**680.0604**	**680.0604**	**0.0176**		**680.5015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	53.8173					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**53.8768**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3388	0.2015	2.0586	6.8200e-003	0.7886	5.2200e-003	0.7938	0.2092	4.8100e-003	0.2140		680.0604	680.0604	0.0176		680.5015
Total	**0.3388**	**0.2015**	**2.0586**	**6.8200e-003**	**0.7886**	**5.2200e-003**	**0.7938**	**0.2092**	**4.8100e-003**	**0.2140**		**680.0604**	**680.0604**	**0.0176**		**680.5015**

3.4 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	53.8173					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**53.9981**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3228	0.1848	1.9218	6.5500e-003	0.7886	5.1300e-003	0.7938	0.2092	4.7200e-003	0.2139		653.2915	653.2915	0.0162		653.6965
Total	**0.3228**	**0.1848**	**1.9218**	**6.5500e-003**	**0.7886**	**5.1300e-003**	**0.7938**	**0.2092**	**4.7200e-003**	**0.2139**		**653.2915**	**653.2915**	**0.0162**		**653.6965**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	53.8173					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0594	1.3570	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**53.8768**	**1.3570**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3228	0.1848	1.9218	6.5500e-003	0.7886	5.1300e-003	0.7938	0.2092	4.7200e-003	0.2139		653.2915	653.2915	0.0162		653.6965
Total	**0.3228**	**0.1848**	**1.9218**	**6.5500e-003**	**0.7886**	**5.1300e-003**	**0.7938**	**0.2092**	**4.7200e-003**	**0.2139**		**653.2915**	**653.2915**	**0.0162**		**653.6965**

Bonsall New High School Build Out Operation

San Diego Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	1,500.00	Student	3.20	150,500.00	0
Other Asphalt Surfaces	2.80	Acre	2.80	121,968.00	0
Parking Lot	3.10	Acre	3.10	135,036.00	0
Other Non-Asphalt Surfaces	30.50	Acre	30.50	1,328,580.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	493.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - See Assumptions

Construction Phase - See Assumptions

Grading -

Vehicle Trips - See Assumptions

Energy Use - See Assumptions

Water And Wastewater - See Assumptions

Solid Waste - See Assumptions

Construction Off-road Equipment Mitigation - See Assumptions

Water Mitigation - See Assumptions

Architectural Coating -

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	740.00	1.00
tblConstructionPhase	PhaseEndDate	1/31/2024	1/2/2023
tblEnergyUse	LightingElect	2.61	2.48
tblEnergyUse	LightingElect	0.88	0.84
tblEnergyUse	T24E	1.60	1.52
tblEnergyUse	T24NG	5.46	5.19
tblLandUse	BuildingSpaceSquareFeet	198,991.47	150,500.00
tblLandUse	LandUseSquareFeet	198,991.47	150,500.00
tblLandUse	LotAcreage	4.57	3.20
tblProjectCharacteristics	CO2IntensityFactor	720.49	493.5
tblProjectCharacteristics	OperationalYear	2018	2025
tblSolidWaste	SolidWasteGenerationRate	273.75	139.38
tblVehicleTrips	WD_TR	1.71	1.30
tblWater	AerobicPercent	87.46	97.54
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	2.46
tblWater	IndoorWaterUseRate	6,607,440.00	5,285,952.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.0543	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581
Energy	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820
Mobile	2.5962	9.7358	29.5963	0.1126	10.8226	0.0849	10.9075	2.8919	0.0790	2.9708		11,480.7630	11,480.7630	0.5487		11,494.4812
Total	**7.6757**	**9.9665**	**29.9453**	**0.1140**	**10.8226**	**0.1029**	**10.9254**	**2.8919**	**0.0969**	**2.9888**		**11,756.1468**	**11,756.1468**	**0.5549**	**5.0400e-003**	**11,771.5213**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.0543	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581
Energy	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820
Mobile	2.5962	9.7358	29.5963	0.1126	10.8226	0.0849	10.9075	2.8919	0.0790	2.9708		11,480.7630	11,480.7630	0.5487		11,494.4812
Total	**7.6757**	**9.9665**	**29.9453**	**0.1140**	**10.8226**	**0.1029**	**10.9254**	**2.8919**	**0.0969**	**2.9888**		**11,756.1468**	**11,756.1468**	**0.5549**	**5.0400e-003**	**11,771.5213**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.5962	9.7358	29.5963	0.1126	10.8226	0.0849	10.9075	2.8919	0.0790	2.9708		11,480.7630	11,480.7630	0.5487		11,494.4812
Unmitigated	2.5962	9.7358	29.5963	0.1126	10.8226	0.0849	10.9075	2.8919	0.0790	2.9708		11,480.7630	11,480.7630	0.5487		11,494.4812

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	1,950.00	915.00	375.00	4,129,214	4,129,214
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,950.00	915.00	375.00	4,129,214	4,129,214

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Other Asphalt Surfaces	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Parking Lot	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Other Non-Asphalt Surfaces	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820
NaturalGas Unmitigated	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	2337.9	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0252**	**0.2292**	**0.1925**	**1.3800e-003**		**0.0174**	**0.0174**		**0.0174**	**0.0174**		**275.0475**	**275.0475**	**5.2700e-003**	**5.0400e-003**	**276.6820**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	2.3379	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0252**	**0.2292**	**0.1925**	**1.3800e-003**		**0.0174**	**0.0174**		**0.0174**	**0.0174**		**275.0475**	**275.0475**	**5.2700e-003**	**5.0400e-003**	**276.6820**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.0543	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581
Unmitigated	5.0543	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.2576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.7823					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0144	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581
Total	**5.0543**	**1.4200e-003**	**0.1565**	**1.0000e-005**		**5.6000e-004**	**5.6000e-004**		**5.6000e-004**	**5.6000e-004**		**0.3363**	**0.3363**	**8.7000e-004**		**0.3581**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.2576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.7823					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0144	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581
Total	**5.0543**	**1.4200e-003**	**0.1565**	**1.0000e-005**		**5.6000e-004**	**5.6000e-004**		**5.6000e-004**	**5.6000e-004**		**0.3363**	**0.3363**	**8.7000e-004**		**0.3581**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Bonsall New High School Build Out Operation

San Diego Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	1,500.00	Student	3.20	150,500.00	0
Other Asphalt Surfaces	2.80	Acre	2.80	121,968.00	0
Parking Lot	3.10	Acre	3.10	135,036.00	0
Other Non-Asphalt Surfaces	30.50	Acre	30.50	1,328,580.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	493.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - See Assumptions

Construction Phase - See Assumptions

Grading -

Vehicle Trips - See Assumptions

Energy Use - See Assumptions

Water And Wastewater - See Assumptions

Solid Waste - See Assumptions

Construction Off-road Equipment Mitigation - See Assumptions

Water Mitigation - See Assumptions

Architectural Coating -

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	740.00	1.00
tblConstructionPhase	PhaseEndDate	1/31/2024	1/2/2023
tblEnergyUse	LightingElect	2.61	2.48
tblEnergyUse	LightingElect	0.88	0.84
tblEnergyUse	T24E	1.60	1.52
tblEnergyUse	T24NG	5.46	5.19
tblLandUse	BuildingSpaceSquareFeet	198,991.47	150,500.00
tblLandUse	LandUseSquareFeet	198,991.47	150,500.00
tblLandUse	LotAcreage	4.57	3.20
tblProjectCharacteristics	CO2IntensityFactor	720.49	493.5
tblProjectCharacteristics	OperationalYear	2018	2025
tblSolidWaste	SolidWasteGenerationRate	273.75	139.38
tblVehicleTrips	WD_TR	1.71	1.30
tblWater	AerobicPercent	87.46	97.54
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	2.46
tblWater	IndoorWaterUseRate	6,607,440.00	5,285,952.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.0543	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581
Energy	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820
Mobile	2.5077	9.9790	29.0413	0.1068	10.8226	0.0853	10.9078	2.8919	0.0793	2.9712		10,898.8798	10,898.8798	0.5515		10,912.6670
Total	**7.5872**	**10.2096**	**29.3903**	**0.1082**	**10.8226**	**0.1033**	**10.9258**	**2.8919**	**0.0973**	**2.9892**		**11,174.2636**	**11,174.2636**	**0.5576**	**5.0400e-003**	**11,189.7071**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.0543	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581
Energy	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820
Mobile	2.5077	9.9790	29.0413	0.1068	10.8226	0.0853	10.9078	2.8919	0.0793	2.9712		10,898.8798	10,898.8798	0.5515		10,912.6670
Total	**7.5872**	**10.2096**	**29.3903**	**0.1082**	**10.8226**	**0.1033**	**10.9258**	**2.8919**	**0.0973**	**2.9892**		**11,174.2636**	**11,174.2636**	**0.5576**	**5.0400e-003**	**11,189.7071**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.5077	9.9790	29.0413	0.1068	10.8226	0.0853	10.9078	2.8919	0.0793	2.9712		10,898.8798	10,898.8798	0.5515		10,912.6670
Unmitigated	2.5077	9.9790	29.0413	0.1068	10.8226	0.0853	10.9078	2.8919	0.0793	2.9712		10,898.8798	10,898.8798	0.5515		10,912.6670

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	1,950.00	915.00	375.00	4,129,214	4,129,214
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,950.00	915.00	375.00	4,129,214	4,129,214

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Other Asphalt Surfaces	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Parking Lot	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Other Non-Asphalt Surfaces	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820
NaturalGas Unmitigated	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	2337.9	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0252**	**0.2292**	**0.1925**	**1.3800e-003**		**0.0174**	**0.0174**		**0.0174**	**0.0174**		**275.0475**	**275.0475**	**5.2700e-003**	**5.0400e-003**	**276.6820**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
High School	2.3379	0.0252	0.2292	0.1925	1.3800e-003		0.0174	0.0174		0.0174	0.0174		275.0475	275.0475	5.2700e-003	5.0400e-003	276.6820
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0252**	**0.2292**	**0.1925**	**1.3800e-003**		**0.0174**	**0.0174**		**0.0174**	**0.0174**		**275.0475**	**275.0475**	**5.2700e-003**	**5.0400e-003**	**276.6820**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.0543	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581
Unmitigated	5.0543	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.2576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.7823					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0144	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581
Total	**5.0543**	**1.4200e-003**	**0.1565**	**1.0000e-005**		**5.6000e-004**	**5.6000e-004**		**5.6000e-004**	**5.6000e-004**		**0.3363**	**0.3363**	**8.7000e-004**		**0.3581**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.2576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	3.7823					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0144	1.4200e-003	0.1565	1.0000e-005		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004		0.3363	0.3363	8.7000e-004		0.3581
Total	**5.0543**	**1.4200e-003**	**0.1565**	**1.0000e-005**		**5.6000e-004**	**5.6000e-004**		**5.6000e-004**	**5.6000e-004**		**0.3363**	**0.3363**	**8.7000e-004**		**0.3581**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix D

Biological Resource Assessment and Jurisdictional Delineation

ESA

Biological Resources Assessment:

Bonsall High School

(Assessor's Parcel Number 124-340-34-00)

***Prepared for*:**

Bonsall Unified School District
31555 Old River Road
Bonsall, California 92003
Phone: (760) 631-5200
Contact: David Medcalf

Prepared by:

17037 Lakeshore Drive
Lake Elsinore, California 92530
Phone: (951) 334-6219
Contact: Shawn Gatchel-Hernandez

October 2016
(Updated January 2018)

TABLE OF CONTENTS

TABLE OF CONTENTS 2

1.0 Introduction 4
1.1 Project Location 4
1.2 Project Description 4

2.0 Methodology 6
2.1 Literature Review 6
2.2 Biological Surveys 7
2.3 Jurisdictional Delineation 7
2.4 Survey Limitations 8

3.0 Results 8
3.1 Existing Conditions 8
3.2 Habitat Types/Vegetation Communities 8
3.2.1 Non-native Grassland 8
3.2.2 Red Willow Dominant Habitat 9
3.2.3 Eucalyptus Woodland 9
3.2.4 Coast Live Oak Woodland 9
3.2.5 Ornamental Vegetation 9
3.2.6 Disturbed, Non-Vegetated 9
3.3 Sensitive Vegetation Communities 9
3.4 Sensitive Plant Species with Potential to Occur 10
3.5 Sensitive Animal Species with Potential to Occur 11
3.6 Jurisdictional Waters/Wetlands 13
3.7 Critical Habitat 14
3.8 Regional Connectivity/Wildlife Movement 14
3.9 Other City, County, Regional, State, or Federal Conservation Plans 15
3.9.1 Resource Protection Ordinance (RPO) 15
3.9.2 Multiple Species Conservation Program (MSCP) and Biological Mitigation Ordinance (BMO) 15
3.9.3 San Diego County General Plan: Conservation and Open Space Element . 16

4.0 Project Impacts 16
4.1 Potential Impacts to Plant Communities 16
4.3 Potential Impacts to Special Status Plant and Wildlife Species 17
4.3.1 Listed Endangered, Threatened, and Candidate Plant and Wildlife Species 17
4.3.2 Special Status Wildlife 18
4.4 Potential Impacts to Jurisdictional Waters 21
4.5 Potential Impacts to Critical Habitat 22
4.6 Potential Impacts to Wildlife Movement 23

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, California 92530

5.0 Recommendations 23
5.1 Mitigation for Impacts to Habitat 23
5.2 Listed and Sensitive Animal Species 23
5.3 Nesting Birds 23

6.0 Literature Cited 25

FIGURES

Figure 1 - Location Map
Figure 2 - Vicinity Map
Figure 3 - Project Plan Map
Figure 4 - Habitat Map
Figure 5 - Habitat Impacts Map

APPENDICES

Appendix A – Species List
Appendix B – Potentially Occurring Species List
Appendix C – Jurisdictional Delineation

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, California 92530

1.0 Introduction

On behalf of Bonsall Unified School District, Hernandez Environmental Services (HES) has conducted a Biological Resources Assessment for the approximate 48.9-acre project site located within the community of Bonsall, within an unincorporated area of northern San Diego County, California. The purpose of this Biological Resources Assessment is to document the biological resources identified as present or potentially present on the project site; identify potential biological resource impacts resulting from the proposed project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with federal, state and local rules and regulations, including the California Environmental Quality Act (CEQA).

1.1 Project Location

The project site is located west of the intersection of Gird Road and Live Oak Creek Circle and north of State Route 76 within the community of Bonsall (Figure 1, Location Map). The project area is situated within an unincorporated area of north San Diego County between the community of Fallbrook to the north, the City of Oceanside to the west, the community of Valley Center to the west, and the North County Metropolitan Subregion and City of Vista to the south (Figure 2, Vicinity Map). Overall access to the area is provided by State Route 76. Land uses surrounding the project site include residential development to the north, a golf course to the south and west, and vacant lands and residential development to the east.

The project site is located within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Bonsall* Quadrangle. The project site is gently rolling, with an elevation range of approximately 230 to 300 feet above mean sea level (MSL). The on-site drainages flow southeast into a tributary to the San Luis Rey River. The approximate center of the project site is located at 33°19'19.85"N, 117°11'44.22"W.

1.2 Project Description

The project would construct a new high school for grades 9-12 with a maximum enrollment of 1,500 students and a maximum of 60 staff (teachers, aides, administrators, and other school personnel). The project would provide approximately 150,500 square feet (sf) building floor area and approximately 21.4 acres of recreational fields, parking, and landscape/hardscape (Figure 3). The proposed buildings include permanent classrooms, administrative offices, media centers, and gymnasium. The project would also include recreational fields and facilities for community use after school hours, weekends, and holidays.

All proposed project structures would be developed to a maximum height of 34 feet. Proposed project building elevations would vary up to 34 feet in height, and the final building elevations would be subject to approval of BUSD Board of Trustees as part of the entitlement process.

A passenger pick-up and drop-off area with seat walls (short walls that can function as seating) would be located along the west side of the campus, along Gird Road. The project would include a lunch shelter

with an adjacent event space (assembly plaza), mounded lawn with tiered seat walls at the event plaza. The site would include an outdoor collaboration courtyard, fitness pavilion, and arts courtyard.

The project would include an athletic field and running track, soccer field, natural turf playing fields, and a fitness pavilion with asphalt basketball courts.

The buildings would be of modern design and include contemporary features such as corrugated metal siding, fiber cement plank siding, fiber cement panels, aluminum storefront and glazing, corrugated metal roofing, and fiber cement plank screens. Exterior colors would be varied neutral colors of tans, browns, and light blue.

PROJECT COMPONENTS

Building/Facility	Number of Floors	Ground Area (SF/Acres)	Total Building Area (SF)
Administration/Student Support	1	5,500 sf	5,500 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building & Learning Commons	2	16,200 sf	32,400 sf
Classroom Building – Art, Music, Drama, Food Service	1	17,800 sf	17,800 sf
Gymnasium/Lockers/Support	1	30,000 sf	30,000 sf
Total – Buildings		**3.2 acres/101,900 sf**	**150,500 sf**
Recreational Fields/Track/Field Building	-	3.4 acres	-
Landscape/Hardscape/Sports Courts	-	12.2 acres	-
Parking Lot/Bus Parking/Driveway	-	5.8 acres	-
Total Improvements - Non-Buildings	**-**	**21.4 acres**	**-**
Golf Course Encroachment		1.9 acres	
Total – Disturbed Area	**-**	**24.6 acres***	**-**
Total – Undisturbed Open Space Area	**-**	**22.4 acres***	
Total – Project Site	**-**	**48.9 acres****	
Offsite Improvements – Gird Road	**-**	**0.1 acres**	**-**

* Does not include existing golf course encroachment area.
** Does not include Gird Road easement area.
SOURCE: BakerNowicki design studio, 2017

The project site would be used on occasional weekends and weekday during non-school hours for sporting events, including: soccer, basketball, volleyball, and track and field. Stadium seating is not proposed for the athletic fields and athletic field light lighting is not proposed. The project site would also be used for occasional large public events such as graduation ceremonies. These large events would not occur more than a few times per school year.

Regional access to the site would be provided by I-15 via SR-76. Project site access would be provided via a new driveway on Gird Road with an onsite turn-around loop for pick-up/dropoff. The northbound left turn pocket in Gird Road would be 150 feet long as part of the project. The access driveway would be stop-sign controlled (i.e. drivers exiting the school onto Gird Road would encounter the stop sign). Acceleration and deceleration transition areas are proposed north and south of the access driveway on

the west side of Gird Road. Sidewalks are not proposed along Gird Road. No other improvements to Gird Road are planned as part of the proposed project. Minor improvements to Gird Road will be required to add a north bound left turn lane pocket and southbound deceleration driveway transition. These improvements will require minor shoulder grading and 6,600 square feet of new pavement located with the county right of way. An encroachment permit is required from San Diego County Public Works to complete work within the right of way.

A driveway extending from the parking lot to the food service building would provide fire/emergency access in addition to food delivery service access. There are bicycle lanes on Gird Road; however, no other bike or pedestrian access would be provided to the project site.

The project includes 60 stalls for staff/visitor parking and 139 stalls for student parking. A parking area for up to 12 school buses would be included on the project site contiguous to staff and student parking areas. Some students within the District would be bused to the high school, including students from the Pala Reservation and eastern Oceanside.

Construction of the project would be completed in two phases. Phase 1 and Phase 2 grading and site preparation and undergrounding of utilities is expected to commence in late 2019 and would last approximately three months. Building construction and development of the driveway, parking lot, landscaping, and lighting would last approximately 13 months. Phase 2 building construction and landscaping would begin in spring 2023. Phase 1 would be operational by summer 2021 and Phase 2 would be operational by summer 2025.

Project grading would be balanced onsite and would not require import or export material to create finished pads for building construction. The design and construction of the proposed project has been developed to adhere to State of California Department of Education design requirements and San Diego County Code (Gird Road improvements).

Project construction personnel and equipment onsite would vary depending on the construction task, and would include a range of construction trades and equipment, including grading, drainage, underground utilities, paving, building construction, lighting, landscaping and fencing. An average of 50 construction personnel would be expected to be onsite at any given time during the construction phase.

2.0 Methodology

2.1 Literature Review

HES conducted a literature search and reviewed aerial photographs and topographic maps of the project location and surrounding areas. A three-mile radius around the project site was used to query the California Natural Diversity Database (CNDDB). In addition, the California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants, the United States Fish and Wildlife Service (USFWS) Critical Habitat and Threatened/Endangered Species lists, and San Diego County Multiple Species Conservation Program (MSCP) were reviewed to obtain species information for the project area.

2.2 Biological Surveys

Field surveys were performed on June 9, 2016, September 22, 2017, and October 21, 2017 by HES biologists Juan J. Hernandez. The purpose of the field surveys was to document the existing habitat conditions, obtain plant and animal species information, view the surrounding uses, assess the potential for state and federal waters, assess the potential for wildlife movement corridors, assess the presence of critical habitat, and, if present, assess for the presence of critical habitat constituent elements.

The entire 48.9-acre project site was surveyed. Where accessible, linear transects approximately 30 feet apart were walked for 100 percent coverage. All species observed were recorded and GPS waypoints were taken to delineate specific habitat types, species locations, state or federal waters, or any other pertinent locational information.

All wildlife species encountered visually or audibly during the field survey were identified and recorded in field notes. Biologists also recorded signs of wildlife species including animal tracks, burrows, nests, scat and remains. Binoculars were used to aid in the identification of observed wildlife. Wildlife field guides and photographs were used to assist with identification of wildlife species during the field survey, as necessary. Assessments of presence/absence were made based on the presence of suitable habitat to support the species, diagnostic signs (burrows, scat, tracks, vocalizations and nests), known records or occurrence within the area, known distribution and elevation range, and habitat utilization from the relevant literature.

A comprehensive list of all plant and wildlife species that were detected during the field survey within the project site is included in Appendix A. Sensitive plant and wildlife species with the potential to occur within the project area are listed in Appendix B.

Further, focused surveys were conducted for special status plant and wildlife species with the potential to occur on the site. These surveys include the following:

- Presence/absence surveys for Least Bell's Vireo (*Vireo bellii pusillus*), Southwestern Willow Flycatcher (*Empidonax traillii extimus*), and Yellow-billed Cuckoo (*Coccyzus americanus*), dated August 28, 2017;
- Botanical survey for San Diego Ambrosia (Ambrosia pumila), dated June 2017;
- Focused burrowing owl surveys, dated April 27, 2017;
- Stephens' kangaroo rat and Dulzura pocket mouse presence/absence trapping studies, dated April 3, 2017; and,
- Oak Tree Survey, dated March 23, 2017.

2.3 Jurisdictional Delineation

An assessment of jurisdictional waters on the project site was conducted by HES biologists Juan J. Hernandez on June 9, 2016, September 22, 2017, and October 21, 2017 to delineate jurisdictional drainages and wetlands resources associated with jurisdictional drainages (Appendix C).

Jurisdictional drainages were identified by looking for features such as a bed, bank or channel. Where

riparian vegetation was present, the drip line of the outer edge of the vegetation was used as the measuring criteria. Furthermore, the presence of an ordinary high water mark (OHWM) was recorded. The OHWM is defined as:

[O]n non-tidal rivers, the line on the shore established by the fluctuations of water and indicated by the physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding area (USACE 1987).

Where the presence of an OHWM was evident, a measurement was taken for the width of the OHWM and the measurement was recorded. Areas measured were also recorded using hand-held GPS for accurate location reference.

Where changes in plant community composition were apparent, the area was examined for the possibility of wetlands. Whether or not adjacent to Waters of the United States (WUS), the potential wetland area was evaluated for the presence of the three wetland indicators: hydrology, hydric soils and hydrophytic vegetation. The guidelines followed are those established in the 1987 Army Corps of Engineers Manual.

2.4 Survey Limitations

Field surveys were conducted during daylight hours. Complete inventories of biological resources present requires various focused surveys at different times of the day during different seasons. Some species such as annual plants are present in only spring or summer, and nocturnal animals are difficult to detect during the day. Due to timing and seasonal variations, the results presented within this report are not an absolute list of all species that the study area may support. Sensitive species with potential to occur are described in Sections 3.4 and 3.5 of this report.

3.0 Results

3.1 Existing Conditions

The project site consists of a large block of undeveloped land surrounded by residential development to the north, a golf course to the south and west, and Gird Road and residential development to the east. The San Luis Rey River is located approximately 0.6 mile south of the project site. The project area is located within the boundaries of the proposed North County MSCP.

3.2 Habitat Types/Vegetation Communities

A total of six habitat types were observed on the 48.9-acre project site (Figure 5, Habitat Map). The six habitat types observed on the project site consist of 40.7 acres of non-native grassland, 2.84 acres of red willow dominant habitat, 2.78 acres of eucalyptus woodland, 1.2 acres if coast live oak woodland, 0.4 acre of ornamental vegetation, and 1.0 acre of disturbed, non-vegetated areas.

3.2.1 Non-native Grassland

The project site contains approximately 40.7 acres of disturbed, non-native grassland dominant habitat.

The property has been disturbed in the past and ongoing maintenance prevents plant species from establishing fully. These areas are cleared and grazed regularly. This habitat type is dominated by non-native species. Dominant species found in this habitat type include *Avena barbata* (slim oat), *Brassica nigra* (black mustard), *Bromus diandrus* (ripgut brome), *Bromus madritensis ssp. rubens* (Foxtail brome), *Hordeum vulgare* (common barley), *Amaranthus albus* (tumbleweed), *Chenopodium murale* (nettle leaf goosefoot), *Erigeron canadensis* (Canada horseweed), *Erodium* sp. (filaree), *Hirschfeldia incana* (mustard), and *Hazardia squarrosa* (saw-toothed goldenbush). This vegetation community is classified as Tier III by the MSCP.

3.2.2 Red Willow Dominant Habitat

The project site contains approximately 2.84 acres of habitat dominated by *Salix laevigata* (red willow). Four main areas associated with an ephemeral stream or the golf course contain this habitat type. Other dominant species found within this habitat type include *Salix lasiolepis* (arroyo willow), *Salix nigra* (black willow), *Baccharis pilularis* (coyote brush), *Baccharis salicifolia* (mulefat), *Carduus pycnocephalus* (Italian thistle), *Centaurea melitensis* (tocalote), *Conium maculatum* (poison hemlock), *Foeniculum vulgare* (fennel), *Hesperocnide tenella* (western stinging nettle), *Melilotus indicus* (yellow sweetclover), *Plantago* sp. (plantain), *Quercus agrifolia* (coast live oak), *Rubus ursinus* (California blackberry), *Sambucus* sp. (elderberry), and *Toxicodendron diversilobum* (poison oak). This vegetation community is classified as Tier I by the MSCP.

3.2.3 Eucalyptus Woodland

The project site contains approximately 2.78 acres of eucalyptus woodland dominant habitat. These areas are located on the north and south portions of the property. The dominant tree species within this habitat type are *Eucalyptus camaldulensis* (red gum) and *Eucalyptus globulus* (blue gum).

3.2.4 Coast Live Oak Woodland

The northern portion of the project site contains approximately 1.2 acres of *Quercus* agrifolia var. agrifolia (coast live oak) dominant habitat.

3.2.5 Ornamental Vegetation

The project site contains approximately 0.4 acre dominated by non-native ornamental trees.

3.2.6 Disturbed, Non-Vegetated

All access routes, road shoulders, and areas cleared of vegetation showing anthropogenic disturbance have been classified as disturbed, non-vegetated areas.

3.3 Sensitive Vegetation Communities

Vegetation communities and other land cover types classified as “sensitive” within this report were determined by applying the following regulatory context. Guidance for determining sensitive vegetation communities is provided by the resource agencies, including CDFW, and CNPS, as well as

supporting documentation such as the CNDDB. The onsite vegetation communities that are considered sensitive include non-native grassland, red willow dominant habitat, coast live oak woodland, and mulefat dominant vegetation. These vegetation communities are included in tiers I, II, and III of the San Diego County MSCP vegetation communities.

3.4 Sensitive Plant Species with Potential to Occur

Species with the potential to occur on site were analyzed based on distribution, habitat requirements, and existing site conditions. A comprehensive list of all plant species, special status, and non-sensitive, that were detected during the field survey within the project site is included in Appendix A. Approximately 68 sensitive plant species have the potential to occur within the project area. Sensitive plant species with the potential to occur within the project area are listed in Appendix B. A total of eight sensitive plant species were determined to have the potential to occur on the project site. One federally-listed plant species, San Diego Ambrosia (*Ambrosia pumila*), has the potential to occur on the project site, as discussed in more detail below. Four species listed as CRPR 1B; one listed as CRPR 2; and two listed as CRPR 4 also have the potential to occur on the project site, as shown in Table 1 below.

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, California 92530

Table 1.
Sensitive Plant Species
With the Potential to Occur On-Site

Scientific Name	Common Name	Status*	Habitat	Potential to Occur
Ambrosia pumila	San Diego ambrosia	SE	Chaparral, Coastal scrub, Valley & foothill grassland	Habitat present. Flowers between April and July. Potential to be present.
Centromadia pungens ssp. laevis	smooth tarplant	1B.1	Alkali playa, Chenopod scrub, Meadow & seep, Riparian woodland, Valley & foothill grassland, Wetland	Habitat present. Flowers between April and September. Potential to be present.
Cryptantha wigginsii	Wiggins' cryptantha	1B.2	Coastal scrub	Habitat present. Flowers between February-June. Potential to be present.
Harpagonella palmeri	Palmer's grapplinghook	4.2	Chaparral, Coastal scrub, Valley & foothill grassland	Habitat present. Flowers between March-April. Potential to be present.
Juncus luciensis	Santa Lucia dwarf rush	1B.2	Chaparral, Great Basin scrub, Lower montane coniferous forest, Meadow & seep, Vernal pool, Wetland	Habitat present. Fruiting time: April-August. Potential to be present.
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	4.3	Chaparral Coastal scrub	Habitat present. Fruiting time: March-June. Potential to be present.
Nama stenocarpa	mud nama	2B.2	Marsh & swamp Wetland	Habitat present. Fruiting time: March-October. Potential to be present.
Quercus dumosa	Nuttall's scrub oak	1B.1	Chaparral Closed-cone coniferous forest Coastal scrub	Habitat present. Fruiting time: March-May. Potential to be present.

*Status:
FE: Federally listed as endangered
FT: Federally listed as threatened
SCE: State candidate for listing as endangered
SE: State-listed as endangered
ST: State-listed as threatened
SR: State rare
California Rare Plant Ranks:
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
3: Plants About Which We Need More Information – A Review List
4: Plants of Limited Distribution – A Watch List
0.1 – Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 – Fairly threatened in California (20–80% occurrences threatened / moderate degree and immediacy of threat)
0.3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

3.5 Sensitive Animal Species with Potential to Occur

Species with the potential to occur on site were analyzed based on distribution, habitat requirements, and existing site conditions. A comprehensive list of all wildlife species, special status, and non-sensitive, that were detected during the field survey within the project site is included in Appendix A. Approximately 66 sensitive wildlife species have the potential to occur within the project area. Sensitive wildlife species with the potential to occur within the project area are listed in Appendix B. A total of 22 sensitive wildlife species were determined to have the potential to occur on the project site. Four of the sensitive wildlife species with the potential to occur on the project site are federally and state-

listed: western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), Stephen's kangaroo rat *(Dipodomys stephensi)*, southwestern willow flycatcher *(Empidonax traillii extimus)*, and least Bell's vireo *(Vireo bellii pusillus)*. One of the sensitive wildlife species with the potential to occur on the project site is state-listed: Swainson's hawk *(Buteo swainsoni).* Two of the sensitive wildlife species with the potential to occur on the project site are CDFW fully protected species; ten are CDFW species of special concern; one is an S4-listed California sensitive species; three are on the CDFW watch list; and one is a U.S. Forest Service sensitive species. The 22 sensitive wildlife species observed or with a potential to occur are listed in Table 2 below.

Table 2.
Sensitive Wildlife Species
with the Potential to Occur On-Site

Scientific Name	Common Name	Status*	Habitat	Potential to Occur
Accipiter cooperii	Cooper's hawk	WL	Cismontane woodland, Riparian forest, Riparian woodland, Upper montane coniferous forest	Nesting habitat is present. Potential to be present.
Aquila chrysaetos	golden eagle	CFP	Broadleaved upland forest, Cismontane woodland, Coastal prairie, Great Basin grassland, Great Basin scrub, Lower montane coniferous forest, Pinon & juniper woodlands, Upper montane coniferous forest Valley & foothill grassland	Nesting habitat is present. Potential to be present.
Artemisiospiza belli belli	Bell's sage sparrow	WL	Chaparral, Coastal scrub	Nesting habitat is present. Potential to be present.
Aspidoscelis hyperythra	Orange-throat whiptail	SSC	Chaparral, Cismontane woodland, Coastal scrub	Limited habitat for this species. Potential to be present.
Athene cunicularia	burrowing owl	SSC	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland	Nesting habitat is present. Potential to be present.
Buteo regalis	ferruginous hawk	WL	Great Basin grassland, Great Basin scrub, Pinon & juniper woodlands, Valley & foothill grassland	Nesting habitat is present. Potential to be present.
Buteo swainsoni	Swainson's hawk	ST	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland	Nesting habitat is present. Potential to be present.
Chaetodipus californicus femoralis	Dulzura pocket mouse	SSC	Chaparral, Coastal scrub, Valley & foothill grassland	Habitat is present. Potential to be present.
Circus cyaneus	northern harrier	SSC	Coastal scrub, Great Basin grassland, Marsh & swamp, Riparian scrub, Valley & foothill grassland, Wetland	Nesting habitat is present. Potential to be present.
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT, SE	Riparian forest	Nesting habitat is present. Potential to be present.
Diadophis punctatus similis	San Diego ringneck snake	USFS - Sensitive	wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forests, woodlands.	Habitat is present. Potential to be present.
Dipodomys stephensi	Stephens' kangaroo rat	FE, ST	Coastal scrub, Valley & foothill grassland	Habitat is present. Potential to be present.
Elanus leucurus	white-tailed kite	CFP	Cismontane woodland Marsh &	Habitat is present.

			swamp, Riparian woodland, Valley & foothill grassland, Wetland	Potential to be present.
Empidonax traillii extimus	Southwestern willow flycatcher	FE, SE	Riparian woodland	Habitat is present. Potential to be present.
Icteria virens	yellow-breasted chat	SSC	Riparian forest, Riparian scrub, Riparian woodland	Nesting habitat is present. Potential to be present.
Lasiurus cinereus	hoary bat	S4	Broadleaved upland forest, Cismontane woodland Lower montane coniferous forest, North coast coniferous forest	Roosting habitat is present. Potential to be present.
Lasiurus xanthinus	western yellow bat	SSC	Desert wash	Roosting habitat is present. Potential to be present.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	SSC	Coastal scrub	Habitat is present. Potential to be present.
Phrynosoma blainvillii	coast horned lizard	SSC	Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Desert wash, Pinon & juniper woodlands, Riparian scrub, Riparian woodland, Valley & foothill grassland	Habitat is present. Potential to be present.
Setophaga petechia	yellow warbler	SSC	Riparian forest, Riparian scrub, Riparian woodland	Nesting habitat is present. Potential to be present.
Spea hammondii	western spadefoot	SSC	Cismontane woodland, Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland	Habitat is present. Potential to be present.
Vireo bellii pusillus	least Bell's vireo	FE/SE	Riparian forest, Riparian scrub, Riparian woodland	Nesting habitat is present. Potential to be present.

*Status:
Federal/State Listed:
FE = Federally listed endangered
FT = Federally listed threatened
SE = State listed endangered
ST = State listed threatened
OTHER:
CFP = California Department of Fish and Game Fully Protected Species
CSC = California Department of Fish and Game Species of Special Concern
WL = California Department of Fish and Game Watch List
S4 = Apparently Secure—Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors.

3.6 Jurisdictional Waters/Wetlands

The San Luis Rey River is a perennial drainage that flows southwesterly through the project area. The project site contains three unnamed tributaries to the San Luis Rey River. These on-site ephemeral drainages flow southeast through the project site to an unnamed tributary to the San Luis Rey River which then flows south to the San Luis Rey River and ultimately into the Pacific Ocean. The Jurisdictional Delineation report prepared for the project identified the extent of jurisdictional wetlands, waters, and riparian resources within the project area (Appendix C).

The project site contains 2.4 acres of ephemeral drainages and associated riparian habitat that would be considered California Department of Fish and Wildlife (CDFW) jurisdictional drainage features, which

are regulated by Section 1602 of the California Department of Fish and Game Code. Furthermore, the project site contains approximately 1.5 acres of ephemeral drainages that would be considered jurisdictional WUS, which are regulated by the USACE and the Regional Water Quality Control Board (RWQCB), which are regulated by Section 404 and 401 of the Clean Water Act. In addition, the project site contains 2.4 acres of ephemeral drainages and associated riparian habitat that would be considered County Resource Protection Ordinance Wetlands Areas.

3.7 Critical Habitat

Critical habitat is defined as areas of land, water, and air space that contain the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated critical habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Critical habitat is designated by USFWS for endangered and threatened species per the federal ESA (16 U.S.C. § 1533 (a)(3)), and to the extent prudent and determinable. Special management of critical habitat, including measures for water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types is required to ensure the long-term survival and recovery of the identified species. Critical habitat designation delineates all suitable habitat for the species, whether or not it is occupied.

The project site is located within designated critical habitat for the arroyo toad (*Anaxyrus californicus*). However, no suitable habitat for this species occurs on the project site. Therefore, no focused surveys for the arroyo toad were conducted.

Designated critical habitat for coastal California gnatcatcher (CAGN) occurs approximately 500 feet to the east of the project site. Designated critical habitat for the San Diego ambrosia occurs approximately 0.30 miles to the southeast of the project site. In addition, designated critical habitats for least Bell's vireo (LBV) and southwestern willow flycatcher (SWFL) occurs approximately 0.28 miles south of the project site.

3.8 Regional Connectivity/Wildlife Movement

Wildlife movement corridors can be local or regional in scale; their functions may vary temporally and spatially based on conditions and species present. Wildlife corridors represent areas where wildlife movement is concentrated due to natural or anthropogenic constraints. Local corridors provide access to resources such as food, water, and shelter. Animals use these corridors, which are often hillsides or riparian areas, to move between different habitats. Regional corridors provide these functions and link two or more large habitat areas. They provide avenues for wildlife dispersal, migration, and contact between otherwise distinct populations.

The project site is not located within a designated wildlife corridor or linkage. The project site consists of a large block of undeveloped land surrounded by residential development to the north, a golf course to the south and west, and Gird Road and residential development to the east. The project site is surrounded by urban and suburban development. The ephemeral drainage dominated by red willow habitat located on the southeast portion of the site flows beneath Gird Road and connects to a large riparian area to the southeast. It is likely the project site serves a function in local wildlife movement from the onsite drainages/riparian areas to the watershed surrounding the San Luis Rey River.

3.9 Other City, County, Regional, State, or Federal Conservation Plans

In San Diego County, regulations have been adopted which define and provide protection to certain types of sensitive biological resources. The project area is covered by the following County regulations:

3.9.1 Resource Protection Ordinance (RPO)

The purpose of the RPO is to protect sensitive resources and to prevent their degradation and loss. The sensitive resources protected by the RPO include wetlands, wetland buffer areas, and sensitive habitat lands, which are defined as follows:

- Lands having one or more of the following attributes are "wetlands'':
    - At least periodically, the land supports a predominance of hydrophytes (plants whose habitat is water or very wet places);
    - The substratum is predominantly undrained hydric soil; or
    - An ephemeral or perennial stream is present, whose substratum is predominately non-soil, and such lands contribute substantially to the biological functions or values of wetlands in the drainage system.

- "Wetland buffer" areas include lands that provide a buffer area of an appropriate size to protect the environmental and functional habitat values of the wetland, or which are integrally important in supporting the full range of the wetland and adjacent upland biological community. Buffer widths shall be 50 to 200 feet from the edge of the wetland as appropriate based on above factors. Where oak woodland occurs adjacent to the wetland, the wetland buffer shall include the entirety of the oak habitat (not to exceed 200 feet in width).

- "Sensitive habitat lands" include those which support unique vegetation communities, or the habitats of rare or endangered species or sub-species of animals or plants, including the area which is necessary to support a viable population of any of these species in perpetuity, or which is critical to the proper functioning of a balanced natural ecosystem or which serves as a functioning corridor.

Pursuant to Government Code Section 53094, school districts are exempt from local zoning and land use regulatory authority, and as such the proposed project is not required to obtain any of the discretionary approvals necessitating compliance with the RPO. Further, pursuant to the RPO, public facilities projects (which are found to be in compliance with subsections A-F), and non-discretionary projects not required to process an Environmental Initial Study through PDS, are determined to be exempt from the RPO. Therefore, the project is considered exempt from the RPO.

3.9.2 Multiple Species Conservation Program (MSCP) and Biological Mitigation Ordinance (BMO)

In response to the continued loss of sensitive biological resources, especially coastal sage scrub (CSS), the County adopted the MSCP in 1997. The proposed project must conform to the MSCP Subarea Plan, and the project must demonstrate that it has incorporated avoidance measures to meet the preserve

design requirements of the Plan. To implement the MSCP Subarea Plan, the County enacted the BMO. Habitats are classified in different "Tier" levels that require different levels of mitigation. Application of the BMO to individual projects is the method by which the County will achieve the conservation goals set forth in the MSCP. Mitigation requirements for different habitat types are based on the location of both the impact and the proposed mitigation. Impacts within core habitat areas or pre-approved mitigation areas require higher mitigation ratios. Conversely, more credit is allowed for preservation or mitigation within core habitat areas or pre-approved mitigation areas.

The project site is located within the boundary of the proposed North County MSCP. However, the North County MSCP is not an approved program, and as a result, has no binding effect on the proposed project. Even if the North County MSCP were approved, designated Public Agency Lands are not included in the MSCP. The draft North County MSCP and the San Diego County General Plan (Fallbrook Community Plan) designate the project site as Public Agency Lands. As a result, for both reasons, the project site is not subject to compliance with the North County MSCP.

Pursuant to Government Code Section 53094, school districts are exempt from local zoning and land use regulatory authority, and as such the proposed project is not required to obtain any of the discretionary approvals necessitating compliance with the BMO. Further, pursuant to Section 86.503 (8) of the BMO, public facilities projects (which are found to be in compliance with subsections A-F), and non-discretionary projects not required to process an Environmental Initial Study through PDS, are determined to be exempt from the BMO. Since the project meets both exemption criteria, it is considered exempt from the BMO. Mitigation requirements contained within the BMO do not apply to the proposed project.

3.9.3 San Diego County General Plan: Conservation and Open Space Element

The Conservation and Open Space Element of the General Plan provides guiding principles for the conservation of biological resources. This element also outlines land use-based conservation goals and policies that protect the ecological and lifecycle needs of threatened, endangered, or otherwise sensitive species and their associated habitats.

4.0 Project Impacts

This section discusses potential impacts to biological resources that could result from project implementation. The Bonsall High School would provide approximately 150,500 square feet (sf) building floor area and approximately 40 acres of recreational fields, parking, and landscape/hardscape. Minor improvements to Gird Road will be required to add a north bound left turn lane pocket and southbound deceleration driveway transition. These improvements will require minor shoulder grading and 6,600 square feet of new pavement located with the county right of way. Development of the project will impact approximately 26.1 of the 48.9-acre site. Approximately 25 acres of non-native grassland, 1.0 acre of disturbed, non-vegetated areas, 0.08 acre of eucalyptus woodland, and 0.05 acre of ornamental vegetation would be impacted as a result of project implementation (Figure 6, Habitat Impacts Map).

4.1 Potential Impacts to Plant Communities

Development of the project will result in impacts to plant communities. Direct impacts consist of any ground-disturbing activities (i.e., vegetation removal, grading, paving, building of structures, installing

landscaping, creating the fuel modification zone, etc.). These areas will be permanently affected by the construction of the project, including the roadway improvements within the Gird Road right-of-way. Figure 6 and Table 3 describe and list the approximate total acreages of plant communities that will be impacted by project. Calculations were based on the currently proposed development design in conjunction with the vegetation map from field surveys and aerial imagery.

Table 3.
Impacts to
Vegetation Communities

Vegetation Type	Impact Acreage
Non-Native Grassland	25
Disturbed, Non-Vegetated Areas	1.0
Eucalyptus Woodland	0.08
Ornamental Vegetation	0.05
Total	**26.1**

4.3 Potential Impacts to Special Status Plant and Wildlife Species

4.3.1 Listed Endangered, Threatened, and Candidate Plant and Wildlife Species

One federally-listed plant species, four federally and state-listed wildlife species, and, one state-listed bird species have the potential to occur on the project site.

San Diego Ambrosia

San Diego ambrosia is a federally endangered and CNPS 1B.1 listed plant species found in wetland/riparian areas in chaparral, grasslands, and coastal sage scrub. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species. Focused surveys conducted on the site for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Western Yellow-billed Cuckoo

The western yellow-billed cuckoo is a federally threatened and state endangered bird. It is found in cottonwood-willow forests. The proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15. Focused surveys conducted for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Stephen's Kangaroo Rat

The Stephens' kangaroo rat is a federally endangered and state threatened rat species. It is found is coastal sage scrub, and valley and foothill grasslands. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species. Focused surveys conducted on the site for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Southwestern Willow Flycatcher

The southwestern willow flycatcher (*Empidonax traillii extimus*) is a federal and state endangered bird species. It is found in riparian woodlands. The proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15. Focused surveys conducted for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Least Bell's Vireo

The least Bell's vireo is a federally endangered and state endangered species found in willow and mulefat scrub. The proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15. Focused surveys conducted for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Swainson's Hawk

The Swainson's hawk is a state threatened species. It is found in riparian forests and woodlands. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

4.3.2 Special Status Wildlife

Two CDFW fully protected wildlife species, golden eagle and white-tailed kite; ten California species of special concern, orange-throat whiptail, burrowing owl, Dulzura pocket mouse, northern harrier, yellow-breasted chat, western yellow bat, San Diego black-tailed jackrabbit, coast horned lizard, yellow warbler, and western spadefoot; three CDFW watch list wildlife species, Cooper's hawk, Bell's sage sparrow, and ferruginous hawk; one S4-listed California sensitive species, hoary bat; and one U.S. Forest Service sensitive species, San Diego ringneck snake have the potential to occur on the project site.

Golden Eagle

The golden eagle is a CDFW fully protected species. This species is found in a variety of habitats ranging from arctic to desert, including tundra, shrublands, grasslands, coniferous forests, farmland, and areas along rivers and streams. This species was not observed on the site during surveys; however, this

species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

White-tailed Kite

The white-tailed kite is a CDFW fully protected species and is found in coastal and valley lowlands. It forages in grasslands, wetlands, and meadows and nests in oak trees, willows, or other tree stands between February and October. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Orange-throat Whiptail

The orange-throat whiptail is a CDFW Species of Special Concern. It is found in coastal sage scrub, chaparral, and valley foothill hardwood habitat. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

Burrowing Owl

The burrowing owl is a CDFW Species of Special Concern. It is found in open coastal sage scrub, grasslands, desert washes and areas with small mammal burrows. Burrowing owls' nesting season is between March 1 and August 31. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species if occurring during the nesting season. Focused surveys conducted on the site for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Dulzura Pocket Mouse

The Dulzura pocket mouse is a CDFW Species of Special Concern. It is found in coastal sage scrub, chaparral, and valley and foothill grasslands communities. The project area does have habitat for this species. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species. Focused surveys conducted on the site for this species found that this species does not occur on the site. No impacts to this species are anticipated to result from project implementation.

Northern Harrier

The northern harrier is a CDFW Species of Special Concern. It is found in wide-open habitats ranging from coastal scrub to riparian scrub to grasslands to fields and marshes. Their nests are concealed on the ground in grasses or wetland vegetation. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and

September 15.

Yellow-breasted Chat

The yellow-breasted chat is a CDFW fully protected species and is found in riparian woodlands, riparian, scrub, and riparian forests. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Western Yellow Bat

The western yellow bat is a California Species of Special Concern. It is found in chaparral and coastal sage scrub, and desert. The project site contains habitat that this species can use for roosting. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

San Diego Black-tailed Jackrabbit

The San Diego black-tailed jackrabbit is a CDFW Species of Special Concern and is found in coastal sage scrub. The project area does have habitat for this species. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

Coast Horned Lizard

The coast horned lizard is a CDFW Species of Special Concern. It is found in coastal sage scrub, chaparral, and valley foothill hardwood habitat. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

Yellow Warbler

The yellow warbler is a CDFW Species of Special Concern. It is found in riparian areas with stands of willow and cottonwoods. It nests in trees and its nesting season is between March 15 and September 15. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Western Spadefoot Toad

The western spadefoot toad is a CDFW Species of Special Concern. It is found in grasslands. They breed in shallow temporary pools of water formed by seasonal rains. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification

zone, etc. will have the potential to affect this species.

Cooper's Hawk

The Cooper's hawk is a CDFW watch list wildlife species. It is found is riparian areas with stands of willow and cottonwoods. It nests in trees and its nesting season is between February 15 and August 15. The proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Bell's Sage Sparrow

The Bell's sage sparrow is a CDFW watch list wildlife species. It is found and nests in chaparral and coastal sage scrub. The project area does have nesting habitat for this species. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Ferruginous Hawk

The ferruginous hawk is a CDFW watch list wildlife species. It is found in in grasslands, prairie, sagebrush steppe, scrubland, and pinyon-juniper woodland edges. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Therefore, the proposed project may impact this species if vegetation removal, grading, paving, building of structures, and operation of equipment is performed during the bird breeding season between March 15 and September 15.

Hoary Bat

The hoary bat is a CDFW S4-listed sensitive species and is found in coastal sage scrub. The project site contains habitat that this species can use for roosting. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

San Diego Ringneck Snake

The San Diego ringneck snake is a USFS sensitive species. It is found in coastal sage scrub, and chaparral under rocks, wood bark, boards, and other surface debris. This species was not observed on the site during surveys; however, this species does have a potential to occur on the project site. Vegetation removal, grading, paving, building of structures, installing landscaping, creating the fuel modification zone, etc. will have the potential to affect this species.

4.4 Potential Impacts to Jurisdictional Waters

The proposed project has been designed to avoid impacts to jurisdictional waters. The onsite development of Bonsall High School will not result in impacts to CDFW jurisdictional Waters of the State and Corps/RWQCB jurisdictional Waters of the U.S. Further, the offsite road improvements within the Gird Road right-of-way will avoid impacts to CDFW jurisdictional Waters of the State and Corps/RWQCB jurisdictional Waters of the U.S. The proposed Gird Road improvements will be conducted within the existing Gird Road right-of-way, and any overhanging trees characterized as riparian habitat associated with jurisdictional waters will be trimmed, not removed. Implementation of the project will not result

in impacts to CDFW jurisdictional Waters of the State and Corps/RWQCB jurisdictional Waters of the U.S.

4.5 Potential Impacts to Critical Habitat

The project site is located within designated critical habitat for the arroyo toad. Approximately 16.14 acres of arroyo toad critical habitat occurs within the eastern portion of the project site. The primary constituent elements of critical habitat for the arroyo toad include the following:

- rivers or streams with a hydrologic regime that supplies sufficient flowing water of suitable quality and sufficient quantity and at the appropriate times to provide space, food, and cover needed to sustain eggs, tadpoles, metamorphosing juveniles, and adult breeding toads;
- low-gradient stream segments (typically less than 4 percent) with sandy or fine gravel substrates which support the formation of shallow pools and sparsely vegetated sand and gravel bars for breeding and rearing of tadpoles and juveniles;
- a natural flooding regime or one sufficiently corresponding to a natural regime that will periodically scour riparian vegetation, rework stream channels and terraces, and redistribute sands and sediments, such that adequate numbers and sizes of breeding pools and sufficient terrace habitats with appropriate vegetation are maintained;
- upland habitats (particularly alluvial streamside terraces and adjacent valley bottomlands that include areas of loose soil and dependable subsurface moisture where toads can burrow underground and avoid desiccation) of sufficient width and quality to provide foraging and living areas for subadult and adult arroyo toads;
- few or no nonnative species that prey upon or compete with arroyo toads, or degrade their habitat;
- stream channels and upland habitats where manmade barriers do not completely or substantially impede migration to overwintering sites, dispersal between populations, or recolonization of areas that contain suitable habitat; and,
- habitats with limited human-related disturbance.

The project site contains three unnamed, ephemeral tributaries to the San Luis Rey River dominated by red willow dominant vegetation. These drainages do not sustain sufficient supplies of flowing water or support shallow pools necessary to provide space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; or sites for breeding, reproduction, rearing (or development) of offspring. The primary constituent elements necessary for arroyo toad do not occur on the project site. No suitable habitat for this species occurs on the project site. Therefore, impacts to arroyo toad critical habitat are not

anticipated to be significant.

4.6 Potential Impacts to Wildlife Movement

As described earlier, the project area likely serves a function in local wildlife movement, but it is unlikely to play a major role in regional wildlife movement. The project site is surrounded by urban and suburban development with the exception of a riparian area which exists to the southeast of the project site. The portions of the site associated with the unnamed tributaries to the San Luis Rey River flow beneath the adjacent roadway and connect to the riparian habitat located to the southeast. These areas may provide for the movement of some wildlife. The proposed project will avoid the 2.4 acres of habitat associated with onsite drainages. Therefore, the onsite riparian habitat will continue to provide local wildlife movement between the site and surrounding habitat areas, and no impacts are proposed to wildlife movement corridors and linkages.

5.0 Recommendations

The following recommendations are being made to avoid, minimize, or compensate for the anticipated impacts from Project activities:

5.1 Mitigation for Impacts to Habitat

The proposed project will result in approximately 25 acres of non-native grassland, 1.0 acre of disturbed, non-vegetated areas, 0.08 acre of eucalyptus woodland, and 0.05 acre of ornamental vegetation. A total of 15.7 acres of non-native grassland, 2.84 acres of red willow dominant habitat, 2.7 acres of eucalyptus woodland, 1.2 acres if coast live oak woodland, and 0.35 acre of ornamental vegetation will be avoided and preserved by the proposed project. The project was designed to avoid impacts to onsite sensitive habitats. No direct impacts to sensitive habitats will occur as a result of project implementation; therefore, no mitigation is required.

5.2 Listed and Sensitive Animal Species

Prior to construction activities, a qualified biological monitor should conduct a preconstruction survey to identify any sensitive biological resources to flag for avoidance. Any reptile species that may be present within the project area shall be relocated outside of the impact areas.

In addition, if bat species are identified as roosting in areas that will be impacted, prior to construction, the applicant shall prepare a plan to exclude bat species from impact area. If bats cannot be excluded from bat roosts, work activities will be avoided within 100 feet of active maternity roosts until bat pups have been weaned and are deemed independent by a qualified biologist.

5.3 Nesting Birds

Construction activities during the nesting season (February 1 through September 15) could adversely affect breeding birds through direct take or indirectly through disruption or harassment. To avoid any

direct or indirect impacts to raptors and/or any native/migratory birds, removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of disturbance must occur during the breeding season, a qualified biologist shall conduct a pre-construction survey to determine the presence or absence of nesting birds within and adjacent to the proposed area of disturbance. The pre-construction survey shall be conducted within three calendar days prior to the start of construction activities (including removal of vegetation). If nesting birds are detected, a qualified biologist shall prepare a letter report or mitigation plan identifying appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc. to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. All active nests shall be flagged and appropriate buffers shall be fenced around the nests. A biological monitor shall be present during ground disturbing activities to ensure all fencing is in place and that no nesting birds are being impacted.

6.0 Literature Cited

American Ornithologists' Union. 1983 (and supplements 1985, 1987, 1989, 1991, 1993, and 1995). *The A.O.U. Check-List of North American Birds.* 6th ed. Allen Press. Lawrence, Kansas.

Burt, W.H., and Grossenheider, R.P., 1980. *Peterson Field Guides, Mammals.* Houghton Mifflin Company. New York, New York.

CDFG (California Department of Fish and Game). 1988a. *California's Wildlife, Volume I: Amphibians and Reptiles.* State of California Resources Agency. Sacramento, California.

CDFG (California Department of Fish and Game). 1988b. *California's Wildlife, Volume II: Birds.* State of California's Resource Agency. Sacramento, California.

CDFG (California Department of Fish and Game). 1988c. *California's Wildlife, Volume III: Mammals*. State of California Resources Agency. Sacramento, California.

CDFG (California Department of Fish and Game). 2014 (October). *Natural Communities List.* The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California.

CDFG (California Department of Fish and Game). 2014 (October*). Endangered and Threatened Animals List.* The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California.

CDFG (California Department of Fish and Game). 2014 (October). *Endangered Threatened and Rare Plants.* The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California.

CDFG (California Department of Fish and Game). 2014 (October). *Special Animals List* . The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California.

California Department of Fish and Wildlife (CDFW), Natural Diversity Database (CNDDB). Accessed February 2015. Sensitive Element Record Search for the La Jolla Quadrangle. California Department of Fish and Wildlife, Sacramento, California.

County of San Diego. September 20, 2006. Sensitive Plant List. Retrieved from: http://www.sandiegocounty.gov.

County of San Diego. September 15, 2010. (2010a). County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources.

Hickman, J.C. 1993. The *Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, California.

Holland, R.F. 1986 (updated 1996). *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Non-game Heritage Program. California Department of Fish and Game. Sacramento, California.

Munz, P.A. 1974. *A Flora of Southern California.* University of California Press. Berkeley, California.

Reed, P.B. 1988. *National List of Plant Species That Occur in Wetlands*: California (Region 0). National wetlands Inventory, U.S. Fish and Wildlife Biological Report 88 (26.9).

March.Sawyer, J.O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, California.

Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California.* Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians*. 2nd ed. Houghton Mifflin Company. Boston, Massachusetts.

Tibor, D.P. 2001. California *Native Plant Society's Inventory of Rare and Endangered Plants of California*. California Native Plant Society. Special Publication, No. 1, 6th ed.

Udvardy, M.D. 1994. *National Audubon Society Field Guide to North American Birds.* Alfred A. Knopf, Inc. New York, New York.

USFWS (United States Fish and Wildlife Service). 1993 (Sep 30). *Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review*. Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C.

USFWS (United States Fish and Wildlife Service). 1994 (Nov 15*). Endangered or Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species.* Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C.

USFWS (United States Fish and Wildlife Service). 1997c (Oct. 31*). Endangered or Threatened Wildlife and Plants.* Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C.

FIGURES

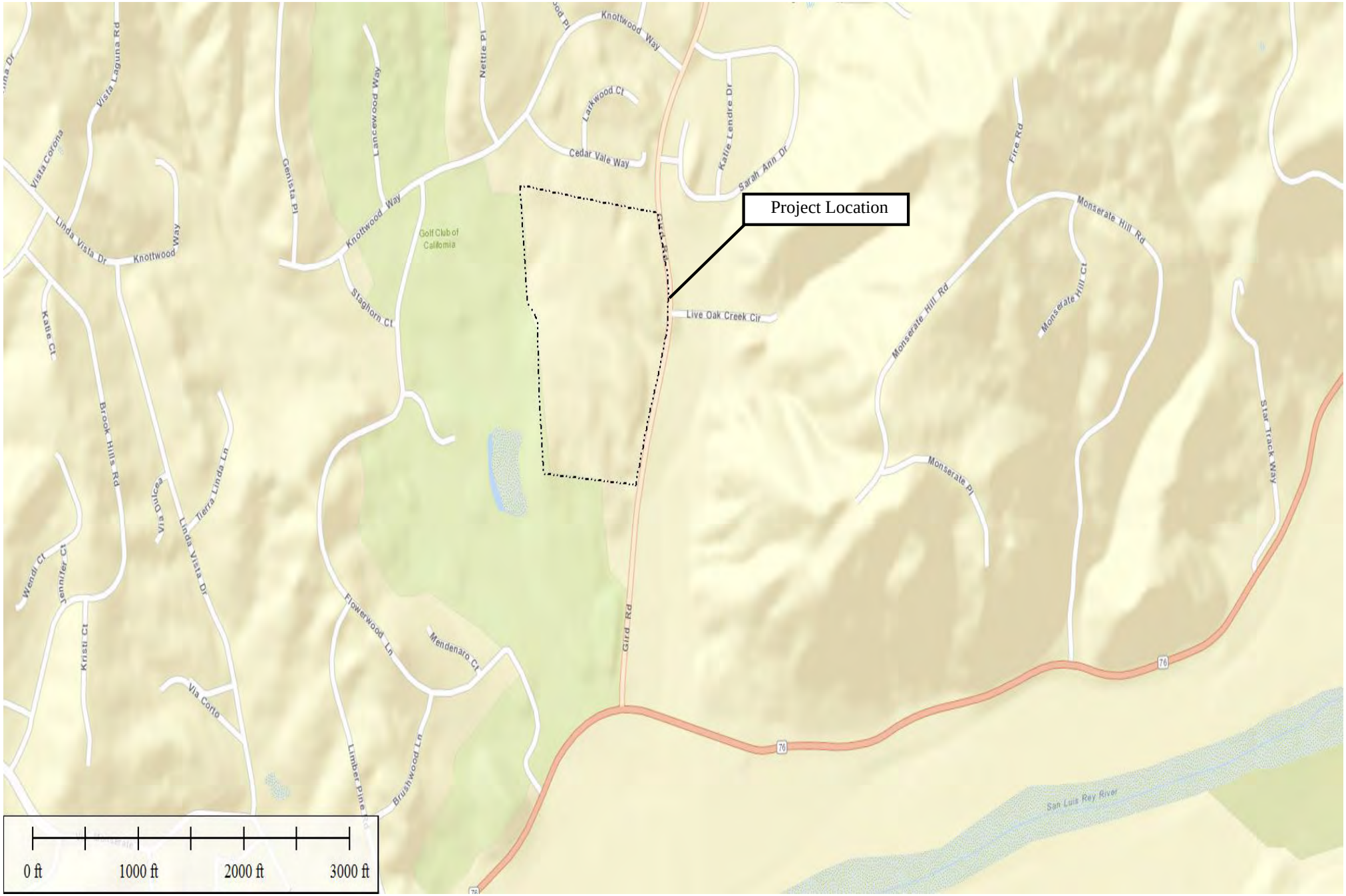


Figure 1
Location Map
Biological Resources Technical Studies
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

N

Hernandez Environmental Services

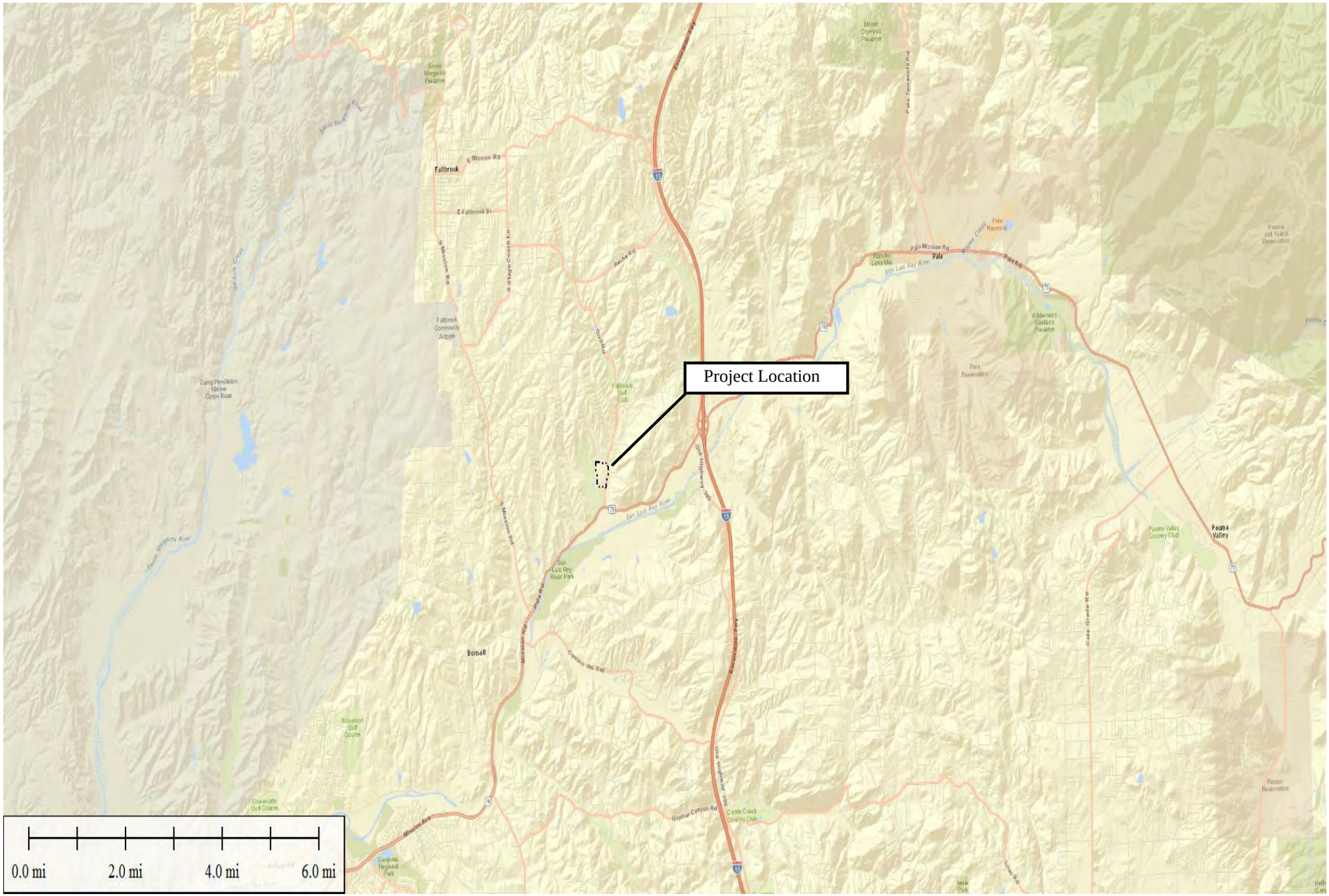


Figure 2
Vicinity Map
Biological Resources Technical Studies
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

N

Hernandez Environmental Services

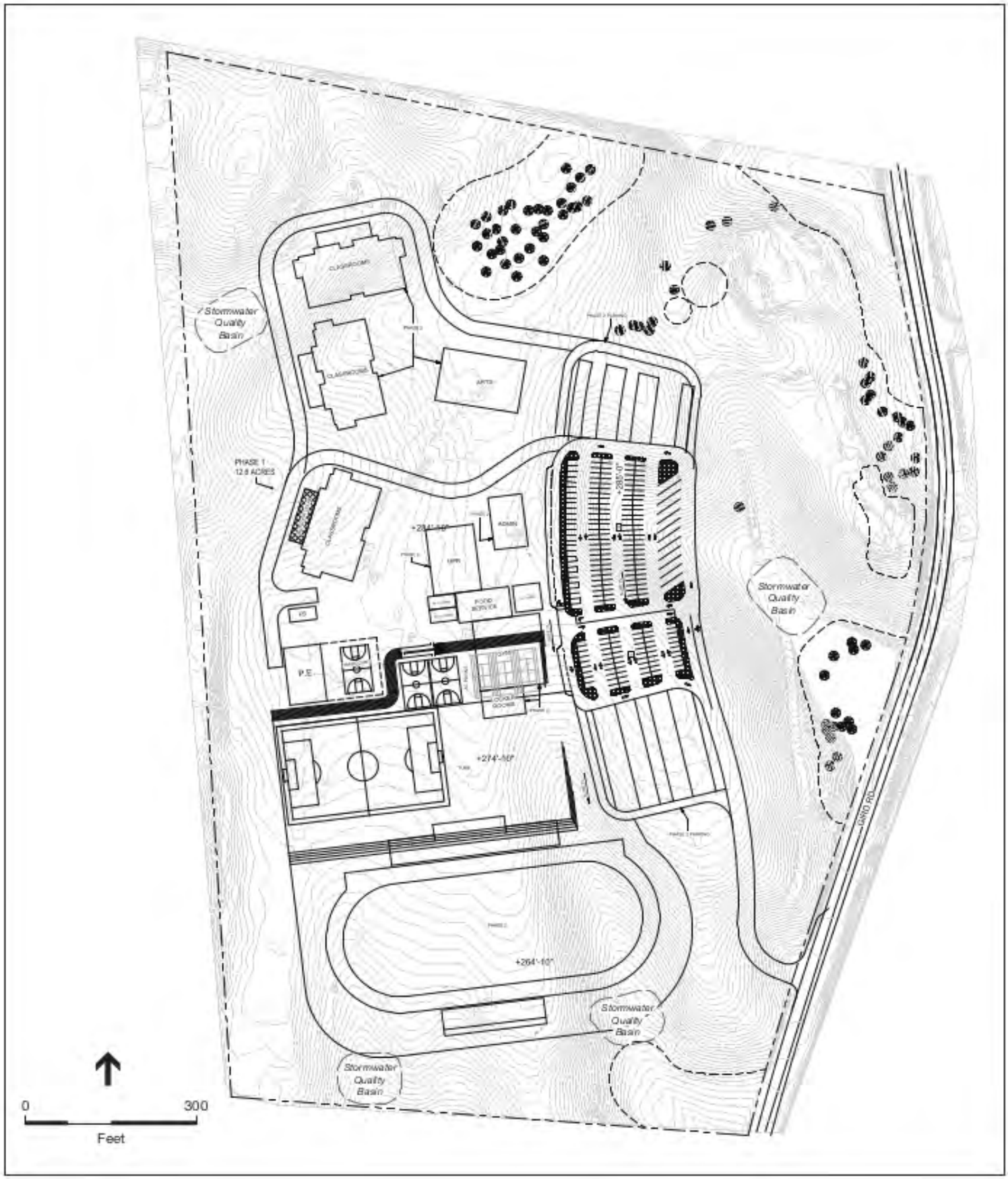


Figure 3
Project Plan Map
Biological Resources Technical Studies
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

N

Hernandez Environmental Services

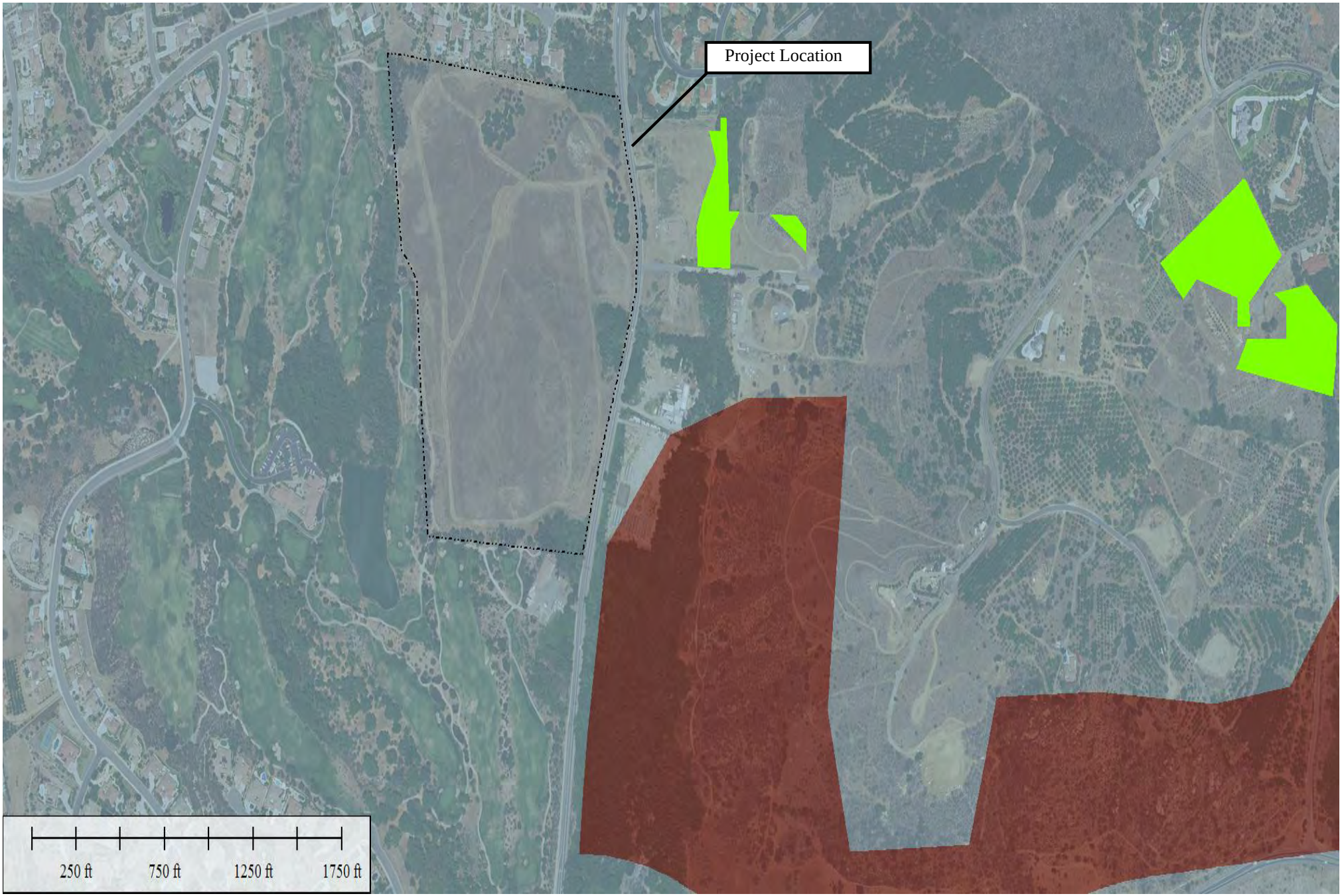


Figure 4

Multiple Species Conservation Program Map
Biological Resources Technical Studies
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

Outside Pre-approved Mitigation Area

Pre-approved Mitigation Area

Preserve Area

N

Hernandez Environmental Services

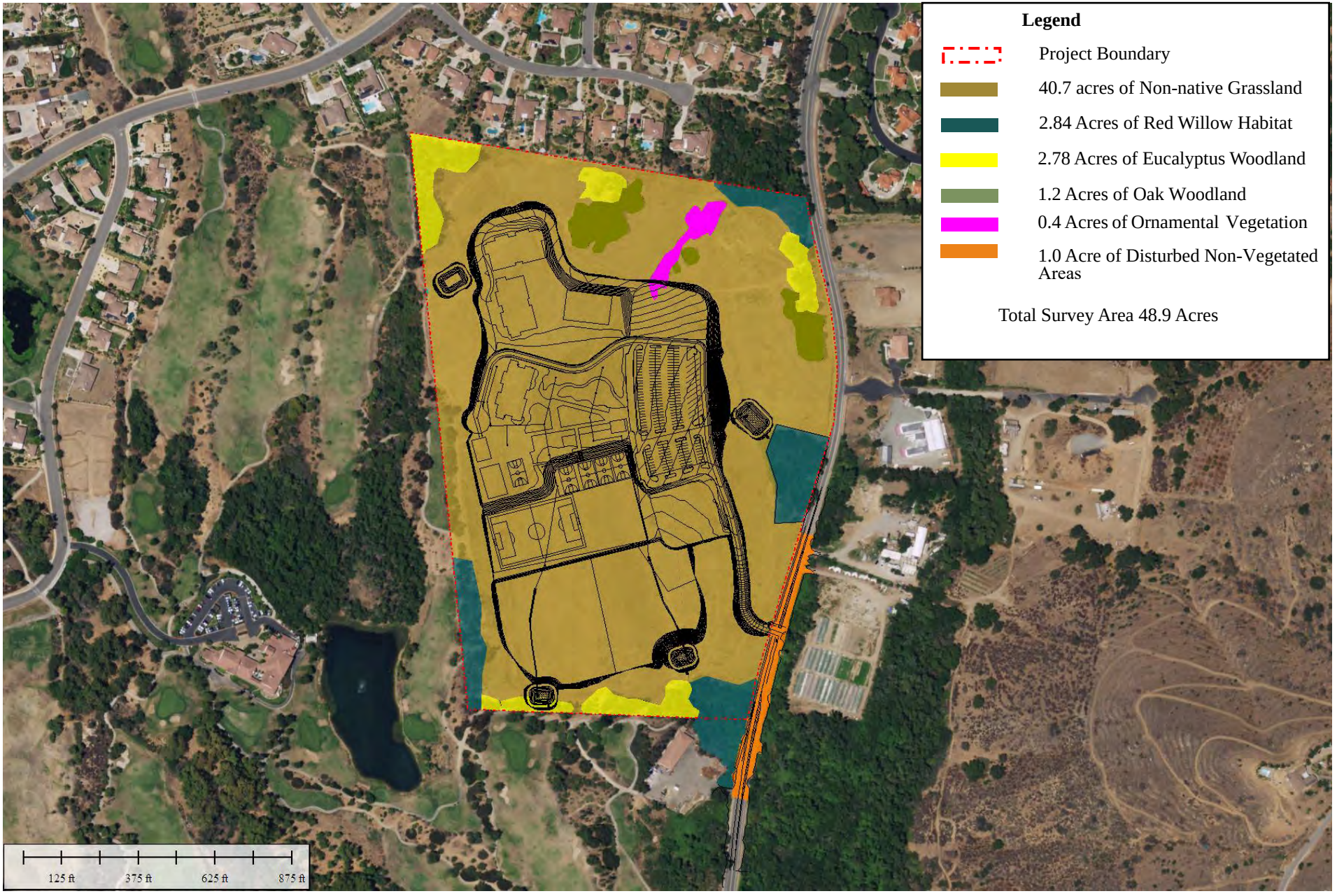


Figure 5
Habitat Map
Biological Resources Technical Studies
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

N

Hernandez Environmental Services

Figure 6

Habitat Impacts Map
Biological Resources Technical Studies
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

N

Hernandez Environmental Services

APPENDIX A

Appendix A Species List

Plant List

Acourtia microcephala	Sacapellote
Amaranthus albus	Tumbleweed
Ambrosia psilostachya	Western ragweed
Artemisia californiaca	California Sagebrush
Avena barbata	Slim Oats
Baccharis pilularis	Coyote brush
Baccharis salicifolia	Mulefat
Bebbia juncea	Sweetbush
Brassica nigra	Black mustard
Brassica tournefortii	Common mustard
Bromus diandrus	Ripgut brome
Bromus madritensis ssp. rubens	Foxtail brome
Carduus pycnocephalus	Italian thistle
Centaurea melitensis	Tocalote
Conium maculatum	Poison hemlock
Chenopodium album	Lambs quarters
Chenopodium murale	Nettle leaf goosefoot
Conyza canadensis	Horseweed
Cuscuta californica	California dodder
Encelia californica	California encelia
Encelia farinosa	Brittlebush
Erigeron bonariensis	Horseweed
Erigeron canadensis	Canada horseweed
Eriogonum fasciculatum	California buckwheat

Erodium sp	Filaree
Eucalyptus camaldulensis	Red gum eucalyptus
Eucalyptus globules	Blue gun eucalyptus
Foeniculum vulgare	Fennel
Hazardia squarrosa	Saw-toothed goldenbush
Helianthus petiolaris	Sunflower
Hesperocnide tenella	Western stinging nettle
Heterptheca grandiflora	Telegraph weed
Hirschfeldia incana	Mustard
Hordeum vulgare	Common barley
Isocoma menziesii	Goldenbush
Lotus scoparius	Deer weed
Malva parviflora	Cheeseweed
Marrubium vulgare	Horehound
Melilotus indicus	Yellow sweetclover
Mirabilis laevis	Wishbone bush
Nicotina glauca	Tree tabacco
Plantago sp.	Plantain
Platanus occidentalis	Sycamore
Populus fremontii	Fremont cottonwood
Quercus agrifolia	Coast live oak
Quercus wislizeni	Scrub oak
Ricinus communis	Castor bean
Rubus ursinus	California blackberry
Rumex crispus	Curley dock

Salix laevigata	Red Willow
Salix lasiolepis	Arroyo willow
Salix nigra	Black willow
Salsola tragus	Russian Thistle
Sambucus sp.	Elderberry
Schinus molle	Peruvian peppertree
Tamarix ramosissima	Tamarisk
Toxicodendron diversilobum	Poison oak
Trichostema lanceolatum	Vinegar weed
Vitis californica	Wild grape

Animal List

Accipiter striatus	Cooper's hawk
Aphelocoma californiaca	Western scrub jay
Buteo jamaicensis	Red-tailed Hawk
Calypte anna	Anna's hummingbird
Canis latrans	Coyote
Carpodacus mexicanus	House finch
Corvus corax	Raven
Corvus brachyrhynchos	Crow
Dendroica coronata	Yellow-rumped warbler
Didelphis virginiana	Virginia opossum
Hirundo rustica	Barn swallow
Melospiza melodia	Song sparrow
Mephitis mephitis	Stripped skunk
Mimus polyglottos	Mocking bird

Passer domesticus	House Sparrow
Pipilo crissalis	California towee
Procyon lotor	Northern racoon
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Sceloporus occidentalis	Western fence lizard
Spermophilus beecheyi	California ground squirrel
Streptopelia decaocto	Euroasian collard dove
Sturnella neglecta	Western meadowlark
Sturnus vulgaris	European starling
Sylvilagus audubonii	Desert cottontail
Thomomys bottae	Botha's pocket gopher
Tyrannus verticalis	Western kingbird
Zenaida macroura	Mourning dove

APPENDIX B

Plants

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Abronia villosa var. aurita	chaparral sand-verbena	None	None	1B.1	BLM_S-Sensitive | USFS_S-Sensitive	Chaparral | Coastal scrub | Desert dunes	No habitat for this species. **Not present.**
Acanthomintha ilicifolia	San Diego thorn-mint	Threatened	Endangered	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral | Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland	No vernal pools present. **Not present.**
Acmispon prostratus	Nuttall's acmispon	None	None	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden | SB_USDA-US Dept of Agriculture	Coastal dunes | Coastal scrub	Site too high in elevation. **Not present.**
Adolphia californica	California adolphia	None	None	2B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral | Coastal scrub | Valley & foothill grassland	No coastal sage scrub or chaparral present. **Not present.**
Ambrosia pumila	San Diego ambrosia	Endangered	None	1B.1		Chaparral | Coastal scrub | Valley & foothill grassland	Habitat present. Flowers between April and July. **Potential to be present.**
Arctostaphylos glandulosa ssp. crassifolia	Del Mar manzanita	Endangered	None	1B.1		Chaparral	No coastal sage scrub or chaparral present. **Not present.**
Arctostaphylos rainbowensis	Rainbow manzanita	None	None	1B.1	BLM_S-Sensitive | USFS_S-Sensitive	Chaparral | Ultramafic	No coastal sage scrub or chaparral present. **Not present.**

Plants

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Astragalus pachypus var. jaegeri	Jaeger's milk-vetch	None	None	1B.1	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral | Cismontane woodland | Coastal scrub | Valley & foothill grassland	Site too low in elevation. **Not present.**
Atriplex coulteri	Coulter's saltbush	None	None	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal bluff scrub | Coastal dunes | Coastal scrub | Valley & foothill grassland	No alkali soils present. **Not present.**
Atriplex pacifica	south coast saltscale	None	None	1B.2		Alkali playa | Coastal bluff scrub | Coastal dunes | Coastal scrub	No dunes present. **Not present.**
Berberis nevinii	Nevin's barberry	Endangered	Endangered	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden | SB_SBBG-Santa Barbara Botanic Garden	Chaparral | Cismontane woodland | Coastal scrub | Riparian scrub	No sandy washes or chaparral present. **Not present.**
Bloomeria clevelandii	San Diego goldenstar	None	None	1B.1	BLM_S-Sensitive	Chaparral | Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland	No coastal sage scrub or mesa grasslands present. **Not present.**

Plants

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Brodiaea filifolia	thread-leaved brodiaea	Threatened	Endangered	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral | Cismontane woodland | Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland	No vernal pools present. **Not present.**
Brodiaea orcuttii	Orcutt's brodiaea	None	None	1B.1	BLM_S-Sensitive | USFS_S-Sensitive	Chaparral | Cismontane woodland | Closed-cone coniferous forest | Meadow & seep | Ultramafic | Valley & foothill grassland | Vernal pool | Wetland	No vernal pools present. **Not present.**
Brodiaea santarosae	Santa Rosa Basalt brodiaea	None	None	1B.2	USFS_S-Sensitive	Valley & foothill grassland	No Santa Rosa basalt present. **Not present.**
Caulanthus simulans	Payson's jewelflower	None	None	4.2	USFS_S-Sensitive	Chaparral | Coastal scrub	Elevation too low for species. **Not present.**
Ceanothus ophiochilus	Vail Lake ceanothus	Threatened	Endangered	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral | Ultramafic	Elevation too low for species. **Not present.**
Ceanothus verrucosus	wart-stemmed ceanothus	None	None	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral	No rocky slopes or chaparral. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Centromadia parryi ssp. australis	southern tarplant	None	None	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Marsh & swamp | Salt marsh | Valley & foothill grassland | Vernal pool | Wetland	No habitat for this species. **Not present.**
Centromadia pungens ssp. laevis	smooth tarplant	None	None	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Alkali playa | Chenopod scrub | Meadow & seep | Riparian woodland | Valley & foothill grassland | Wetland	Habitat present. Flowers between April and September. **Potential to be present.**
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	None	None	1B.1	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal bluff scrub | Coastal dunes	No habitat for this species. **Not present.**
Chorizanthe polygonoides var. longispina	long-spined spineflower	None	None	1B.2	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral | Coastal scrub | Meadow & seep | Ultramafic | Valley & foothill grassland | Vernal pool	No habitat for this species. **Not present.**
Clarkia delicata	delicate clarkia	None	None	1B.2	BLM_S-Sensitive	Chaparral | Cismontane woodland | Ultramafic	No habitat for this species. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Clinopodium chandleri	San Miguel savory	None	None	1B.2	BLM_S-Sensitive | USFS_S-Sensitive	Chaparral | Cismontane woodland | Coastal scrub | Riparian woodland | Ultramafic | Valley & foothill grassland	No rocky slope habitat or chaparral. **Not present.**
Comarostaphylis diversifolia ssp. diversifolia	summer holly	None	None	1B.2	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral | Cismontane woodland	No habitat for this species. **Not present.**
Corethrogyne filaginifolia var. linifolia	Del Mar Mesa sand aster	None	None	1B.1		Chaparral | Coastal bluff scrub | Coastal scrub	No habitat for this species. Found on coastal bluffs. **Not present.**
Cryptantha wigginsii	Wiggins' cryptantha	None	None	1B.2		Coastal scrub	Habitat present. Flowers between February-June. **Potential to be present.**
Dodecahema leptoceras	slender-horned spineflower	Endangered	Endangered	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral | Cismontane woodland | Coastal scrub	No habitat for this species. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Dudleya blochmaniae ssp. blochmaniae	Blochman's dudleya	None	None	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral | Coastal bluff scrub | Coastal scrub | Ultramafic | Valley & foothill grassland	No habitat for this species. **Not present.**
Dudleya multicaulis	many-stemmed dudleya	None	None	1B.2	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral | Coastal scrub | Valley & foothill grassland	No habitat for this species. **Not present.**
Dudleya viscida	sticky dudleya	None	None	1B.2	USFS_S-Sensitive	Chaparral | Cismontane woodland | Coastal bluff scrub | Coastal scrub	No habitat for this species. **Not present.**
Eryngium aristulatum var. parishii	San Diego button-celery	Endangered	Endangered	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland	No habitat for this species. **Not present.**
Euphorbia misera	cliff spurge	None	None	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal bluff scrub | Coastal scrub | Mojavean desert scrub	No habitat for this species. **Not present.**
Geothallus tuberosus	Campbell's liverwort	None	None	1B.1		Coastal scrub | Vernal pool | Wetland	No habitat for this species. **Not present.**
Harpagonella palmeri	Palmer's grapplinghook	None	None	4.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral | Coastal scrub | Valley & foothill grassland	Habitat present. Flowers between March-April. **Potential to be present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Hazardia orcuttii	Orcutt's hazardia	None	Threatened	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chaparral | Coastal scrub	No habitat for this species. **Not present.**
Horkelia cuneata var. puberula	mesa horkelia	None	None	1B.1	USFS_S-Sensitive	Chaparral | Cismontane woodland | Coastal scrub	No habitat for this species. **Not present.**
Horkelia truncata	Ramona horkelia	None	None	1B.3	SB_RSABG-Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral | Cismontane woodland | Ultramafic	No habitat for this species. **Not present.**
Isocoma menziesii var. decumbens	decumbent goldenbush	None	None	1B.2		Chaparral | Coastal scrub	No habitat for this species. **Not present.**
Juncus luciensis	Santa Lucia dwarf rush	None	None	1B.2	USFS_S-Sensitive	Chaparral | Great Basin scrub | Lower montane coniferous forest | Meadow & seep | Vernal pool | Wetland	Habitat present. Fruiting time: April-August. **Potential to be present.**
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None	None	1B.1	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden	Alkali playa | Marsh & swamp | Salt marsh | Vernal pool | Wetland	No habitat for this species. **Not present.**
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	None	None	4.3		Chaparral | Coastal scrub	Habitat present. Fruiting time: March-June. **Potential to be present.**
Leptosyne maritima	sea dahlia	None	None	2B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal bluff scrub | Coastal scrub	No habitat for this species. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Mielichhoferia shevockii	Shevock's copper moss	None	None	1B.2		Cismontane woodland	No habitat for this species. **Not present.**
Monardella hypoleuca ssp. intermedia	intermediate monardella	None	None	1B.3		Chaparral | Cismontane woodland | Lower montane coniferous forest	No habitat for this species. **Not present.**
Monardella hypoleuca ssp. lanata	felt-leaved monardella	None	None	1B.2	BLM_S-Sensitive | USFS_S-Sensitive	Chaparral | Cismontane woodland	No habitat for this species. **Not present.**
Monardella macrantha ssp. hallii	Hall's monardella	None	None	1B.3	SB_RSABG-Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Broadleaved upland forest | Chaparral | Cismontane woodland | Lower montane coniferous forest | Valley & foothill grassland	Monardella macrantha ssp. hallii
Nama stenocarpa	mud nama	None	None	2B.2		Marsh & swamp | Wetland	Habitat present. Fruiting time: March-October. **Potential to be present.**
Navarretia fossalis	spreading navarretia	Threatened	None	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Alkali playa | Chenopod scrub | Marsh & swamp | Vernal pool | Wetland	No habitat for this species. **Not present.**
Nemacaulis denudata var. denudata	coast woolly-heads	None	None	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal dunes	No habitat for this species. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Nemacaulis denudata var. gracilis	slender cottonheads	None	None	2B.2		Coastal dunes | Desert dunes | Sonoran desert scrub	No habitat for this species. **Not present.**
Nolina cismontana	chaparral nolina	None	None	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden | SB_SBBG-Santa Barbara Botanic Garden | USFS_S-Sensitive	Chaparral | Coastal scrub | Ultramafic	No habitat for this species. **Not present.**
Packera ganderi	Gander's ragwort	None	Rare	1B.2	BLM_S-Sensitive | USFS_S-Sensitive	Chaparral | Ultramafic	No habitat for this species. **Not present.**
Pseudognaphalium leucocephalum	white rabbit-tobacco	None	None	2B.2		Chaparral | Cismontane woodland | Coastal scrub | Riparian woodland	No habitat for this species. **Not present.**
Quercus dumosa	Nuttall's scrub oak	None	None	1B.1	USFS_S-Sensitive	Chaparral | Closed-cone coniferous forest | Coastal scrub	Habitat present. Fruiting time: March-May. **Potential to be present.**
San Diego Mesa Claypan Vernal Pool	San Diego Mesa Claypan Vernal Pool	None	None			Vernal pool | Wetland	No habitat for this species. **Not present.**
San Diego Mesa Hardpan Vernal Pool	San Diego Mesa Hardpan Vernal Pool	None	None			Vernal pool | Wetland	No habitat for this species. **Not present.**
Southern Coastal Salt Marsh	Southern Coastal Salt Marsh	None	None			Marsh & swamp | Wetland	No habitat for this species. **Not present.**

Plants

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Southern Cottonwood Willow Riparian Forest	Southern Cottonwood Willow Riparian Forest	None	None			Riparian forest	**Not present.**
Southern Interior Basalt Flow Vernal Pool	Southern Interior Basalt Flow Vernal Pool	None	None			Vernal pool | Wetland	**Not present.**
Southern Maritime Chaparral	Southern Maritime Chaparral	None	None			Chaparral	**Not present.**
Southern Riparian Forest	Southern Riparian Forest	None	None			Riparian forest	**Present.**
Southern Riparian Scrub	Southern Riparian Scrub	None	None			Riparian scrub	Present.
Southern Sycamore Alder Riparian Woodland	Southern Sycamore Alder Riparian Woodland	None	None			Riparian woodland	Not present.
Southern Willow Scrub	Southern Willow Scrub	None	None			Riparian scrub	Present.
Tetracoccus dioicus	Parry's tetracoccus	None	None	1B.2	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden | USFS_S-Sensitive	Chaparral | Coastal scrub | Ultramafic	No habitat for this species. **Not present.**
Tortula californica	California screw moss	None	None	1B.2	BLM_S-Sensitive	Chenopod scrub | Valley & foothill grassland	No habitat for this species. **Not present.**
Valley Needlegrass Grassland	Valley Needlegrass Grassland	None	None			Valley & foothill grassland	Site too distubed**. Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Accipiter cooperii	Cooper's hawk	None	None		CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland | Riparian forest | Riparian woodland | Upper montane coniferous forest	Nesting habitat is present. **Potential to be present.**
Agelaius tricolor	tricolored blackbird	None	None		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Marsh & swamp | Swamp | Wetland	No habitat present. **Not present.**
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None	None		CDFW_WL-Watch List	Chaparral | Coastal scrub	No habitat present. **Not present.**
Anaxyrus californicus	arroyo toad	Endangered	None		CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered	Desert wash | Riparian scrub | Riparian woodland | South coast flowing waters | South coast standing waters	No habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Antrozous pallidus	pallid bat	None	None		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Chaparral | Coastal scrub | Desert wash | Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Riparian woodland | Sonoran desert scrub | Upper montane coniferous forest | Valley & foothill grassland	No roosting or nursing habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Aquila chrysaetos	golden eagle	None	None		BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | CDFW_WL-Watch List | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest | Cismontane woodland | Coastal prairie | Great Basin grassland | Great Basin scrub | Lower montane coniferous forest | Pinon & juniper woodlands | Upper montane coniferous forest | Valley & foothill grassland	Nesting habitat is present. **Potential to be present.**
Arctostaphylos glandulosa ssp. crassifolia	Del Mar manzanita	Endangered	None	1B.1		Chaparral	No habitat present. **Not present.**
Artemisiospiza belli belli	Bell's sage sparrow	None	None		CDFW_WL-Watch List | USFWS_BCC-Birds of Conservation Concern	Chaparral | Coastal scrub	Nesting habitat is present. **Potential to be present.**
Aspidoscelis hyperythra	orangethroat whiptail	None	None		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Chaparral | Cismontane woodland | Coastal scrub	Limited habitat for this species. **Potential to be present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Athene cunicularia	burrowing owl	None	None		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Coastal prairie | Coastal scrub | Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Sonoran desert scrub | Valley & foothill grassland	Nesting habitat is present. **Potential to be present.**
Bombus crotchii	Crotch bumble bee	None	None				Not present.
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None		IUCN_VU-Vulnerable	Valley & foothill grassland | Vernal pool | Wetland	No habitat present. **Not present.**
Branchinecta sandiegonensis	San Diego fairy shrimp	Endangered	None		IUCN_EN-Endangered	Chaparral | Coastal scrub | Vernal pool | Wetland	No habitat present. **Not present.**
Buteo regalis	ferruginous hawk	None	None		CDFW_WL-Watch List | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Great Basin grassland | Great Basin scrub | Pinon & juniper woodlands | Valley & foothill grassland	Nesting habitat is present. **Potential to be present.**
Buteo swainsoni	Swainson's hawk	None	Threatened		BLM_S-Sensitive | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Great Basin grassland | Riparian forest | Riparian woodland | Valley & foothill grassland	Nesting habitat is present. **Potential to be present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Campylorhynchus brunneicapillus sandiegensis	coastal cactus wren	None	None		CDFW_SSC-Species of Special Concern | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Coastal scrub	No habitat present. **Not present.**
Chaetodipus californicus femoralis	Dulzura pocket mouse	None	None		CDFW_SSC-Species of Special Concern	Chaparral | Coastal scrub | Valley & foothill grassland	Habitat is present. **Potential to be present.**
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None	None		CDFW_SSC-Species of Special Concern	Chaparral | Coastal scrub	No habitat present. **Not present.**
Charadrius alexandrinus nivosus	western snowy plover	Threatened	None		CDFW_SSC-Species of Special Concern | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Great Basin standing waters | Sand shore | Wetland	No habitat present. **Not present.**
Charina trivirgata	rosy boa	None	None		IUCN_LC-Least Concern | USFS_S-Sensitive	Chaparral | Mojavean desert scrub | Sonoran desert scrub	No habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Circus cyaneus	northern harrier	None	None		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Coastal scrub | Great Basin grassland | Marsh & swamp | Riparian scrub | Valley & foothill grassland | Wetland	Nesting habitat is present. **Potential to be present.**
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered		BLM_S-Sensitive | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Riparian forest	Nesting habitat is present. **Potential to be present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Corynorhinus townsendii	Townsend's big-eared bat	None	Candidate Threatened		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Broadleaved upland forest | Chaparral | Chenopod scrub | Great Basin grassland | Great Basin scrub | Joshua tree woodland | Lower montane coniferous forest | Meadow & seep | Mojavean desert scrub | Riparian forest | Riparian woodland | Sonoran desert scrub | Sonoran thorn woodland | Upper montane coniferous forest | Valley & foothill grassland	No habitat present. **Not present.**
Crotalus ruber	red-diamond rattlesnake	None	None		CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Chaparral | Mojavean desert scrub | Sonoran desert scrub	No habitat present. **Not present.**
Danaus plexippus pop. 1	monarch - California overwintering population	None	None		USFS_S-Sensitive	Closed-cone coniferous forest	No habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Diadophis punctatus similis	San Diego ringneck snake	None	None		USFS_S-Sensitive		Habitat is present. **Potential to be present.**
Dipodomys stephensi	Stephens' kangaroo rat	Endangered	Threatened		IUCN_EN-Endangered	Coastal scrub | Valley & foothill grassland	Habitat is present. **Potential to be present.**
Elanus leucurus	white-tailed kite	None	None		BLM_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern	Cismontane woodland | Marsh & swamp | Riparian woodland | Valley & foothill grassland | Wetland	Habitat is present. **Potential to be present.**
Empidonax traillii extimus	southwestern willow flycatcher	Endangered	Endangered		NABCI_RWL-Red Watch List	Riparian woodland	Habitat is present. **Potential to be present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Emys marmorata	western pond turtle	None	None		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh & swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast standing waters | Wetland	No habitat present. **Not present.**
Eremophila alpestris actia	California horned lark	None	None		CDFW_WL-Watch List | IUCN_LC-Least Concern	Marine intertidal & splash zone communities | Meadow & seep	No habitat present. **Not present.**
Eucyclogobius newberryi	tidewater goby	Endangered	None		AFS_EN-Endangered | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing waters	No habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Eumops perotis californicus	western mastiff bat	None	None		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | WBWG_H-High Priority	Chaparral | Cismontane woodland | Coastal scrub | Valley & foothill grassland	No habitat present. **Not present.**
Euphydryas editha quino	quino checkerspot butterfly	Endangered	None		XERCES_CI-Critically Imperiled	Chaparral | Coastal scrub	No habitat present. **Not present.**
Gila orcuttii	arroyo chub	None	None		AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | South coast flowing waters	No habitat present. **Not present.**
Icteria virens	yellow-breasted chat	None	None		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Riparian forest | Riparian scrub | Riparian woodland	Nesting habitat is present. **Potential to be present.**
Ixobrychus exilis	least bittern	None	None		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Marsh & swamp | Wetland	No habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Lasiurus cinereus	hoary bat	None	None		IUCN_LC-Least Concern | WBWG_M-Medium Priority	Broadleaved upland forest | Cismontane woodland | Lower montane coniferous forest | North coast coniferous forest	Roosting habitat is present. **Potential to be present.**
Lasiurus xanthinus	western yellow bat	None	None		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | WBWG_H-High Priority	Desert wash	Roosting habitat is present. **Potential to be present.**
Leptonycteris yerbabuenae	lesser long-nosed bat	Endangered	None		IUCN_VU-Vulnerable | WBWG_H-High Priority	Mojavean desert scrub | Sonoran desert scrub | Upper Sonoran scrub	No habitat present. **Not present.**
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	None		CDFW_SSC-Species of Special Concern	Coastal scrub	**Habitat is present. Potential to be present.**
Myotis yumanensis	Yuma myotis	None	None		BLM_S-Sensitive | IUCN_LC-Least Concern | WBWG_LM-Low-Medium Priority	Lower montane coniferous forest | Riparian forest | Riparian woodland | Upper montane coniferous forest	No habitat present. **Not present.**
Neotoma lepida intermedia	San Diego desert woodrat	None	None		CDFW_SSC-Species of Special Concern	Coastal scrub	No habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Nycticorax nycticorax	black-crowned night heron	None	None		IUCN_LC-Least Concern	Marsh & swamp | Riparian forest | Riparian woodland | Wetland	No habitat present. **Not present.**
Nyctinomops femorosaccus	pocketed free-tailed bat	None	None		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | WBWG_M-Medium Priority	Joshua tree woodland | Pinon & juniper woodlands | Riparian scrub | Sonoran desert scrub	No habitat present. **Not present.**
Nyctinomops macrotis	big free-tailed bat	None	None		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | WBWG_MH-Medium-High Priority		No habitat present. **Not present.**
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None	Endangered			Marsh & swamp | Wetland	No habitat present. **Not present.**
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	None		CDFW_SSC-Species of Special Concern	Coastal scrub	No habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Phrynosoma blainvillii	coast horned lizard	None	None		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Chaparral | Cismontane woodland | Coastal bluff scrub | Coastal scrub | Desert wash | Pinon & juniper woodlands | Riparian scrub | Riparian woodland | Valley & foothill grassland	**Habitat is present. Potential to be present.**
Plegadis chihi	white-faced ibis	None	None		CDFW_WL-Watch List | IUCN_LC-Least Concern	Marsh & swamp | Wetland	No habitat present. **Not present.**
Plestiodon skiltonianus interparietalis	Coronado Island skink	None	None		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern	Chaparral | Cismontane woodland | Pinon & juniper woodlands	No habitat present. **Not present.**
Polioptila californica californica	coastal California gnatcatcher	Threatened	None		CDFW_SSC-Species of Special Concern | NABCI_YWL-Yellow Watch List	Coastal bluff scrub | Coastal scrub	No habitat present. **Not present.**
Rallus longirostris levipes	light-footed clapper rail	Endangered	Endangered		CDFW_FP-Fully Protected | NABCI_RWL-Red Watch List	Marsh & swamp | Salt marsh | Wetland	No habitat present. **Not present.**
Riparia riparia	bank swallow	None	Threatened		BLM_S-Sensitive | IUCN_LC-Least Concern	Riparian scrub | Riparian woodland	No habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Salvadora hexalepis virgultea	coast patch-nosed snake	None	None		CDFW_SSC-Species of Special Concern	Coastal scrub	No habitat present. **Not present.**
Setophaga petechia	yellow warbler	None	None		CDFW_SSC-Species of Special Concern | USFWS_BCC-Birds of Conservation Concern	Riparian forest | Riparian scrub | Riparian woodland	Nesting habitat is present. **Potential to be present.**
Spea hammondii	western spadefoot	None	None		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	Cismontane woodland | Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland	**Habitat is present. Potential to be present.**
Sternula antillarum browni	California least tern	Endangered	Endangered		CDFW_FP-Fully Protected | NABCI_RWL-Red Watch List	Alkali playa | Wetland	No habitat present. **Not present.**
Streptocephalus woottoni	Riverside fairy shrimp	Endangered	None		IUCN_EN-Endangered	Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland	No habitat present. **Not present.**
Taricha torosa	Coast Range newt	None	None		CDFW_SSC-Species of Special Concern		No habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Taxidea taxus	American badger	None	None		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Alkali marsh | Alkali playa | Alpine | Alpine dwarf scrub | Bog & fen | Brackish marsh | Broadleaved upland forest | Chaparral | Chenopod scrub | Cismontane woodland | Closed-cone coniferous forest | Coastal bluff scrub | Coastal dunes | Coastal prairie | Coastal	No habitat present. **Not present.**
Thamnophis hammondii	two-striped gartersnake	None	None		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Marsh & swamp | Riparian scrub | Riparian woodland | Wetland	No habitat present. **Not present.**

Scientific Name	Common Name	Federal Listing	State Listing	CNPS	OthrStatus	Habitats	Presence/Absence
Thamnophis sirtalis ssp.	south coast gartersnake	None	None		CDFW_SSC-Species of Special Concern	Artificial standing waters | Marsh & swamp | Riparian scrub | Riparian woodland | South coast flowing waters | South coast standing waters | Wetland	No habitat present. **Not present.**
Tryonia imitator	mimic tryonia (=California brackishwater snail)	None	None		IUCN_DD-Data Deficient	Aquatic | Brackish marsh | Estuary | Lagoon | Marsh & swamp | Salt marsh | Wetland	No habitat present. **Not present.**
Vireo bellii pusillus	least Bell's vireo	Endangered	Endangered		IUCN_NT-Near Threatened | NABCI_YWL-Yellow Watch List	Riparian forest | Riparian scrub | Riparian woodland	Nesting habitat is present. **Potential to be present.**

APPENDIX C

October 27, 2017

Mr. David Medcalf
Bonsall Unified School District
31555 Old River Road Bonsall,
California 92003

RE: Jurisdictional Delineation for the Bonsall High School (Assessor's Parcel Number 124-340-34-00)

Dear Mr. Medcalf:

At your request, Hernandez Environmental Services has prepared a Jurisdictional Delineation for the proposed Bonsall High School project. The proposed project site, Assessor's Parcel Number (APN) 124-340-34-00, consists of approximately 48.9 acres of vacant land within the community of Bonsall, located in unincorporated San Diego County, California. The project site is located west of the intersection of Gird Road and Live Oak Creek Circle and north of State Route 76. Refer to **Figure 1** and **Figure 2**. Specifically, the project site is located within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Bonsall* Quadrangle.

The Bonsall High School would provide educational facilities for grades 9–12. The proposed project build out would provide approximately 101,900 – 150,500 square feet (sf) of floor area in a few, separate buildings (**Figure 3**). The classroom buildings are anticipated to be of two-story construction. The proposed buildings include permanent classroom facilities, administrative offices, media centers, and the PAC. Recreational fields and facilities which will include community use are also proposed. The site will provide access to dance, band, exercise, and physical educational programs using the on-site fields.

The Bonsall High School would provide educational facilities for grades 9–12 with a maximum enrollment of 1,500 students. An estimated 50 -60 teachers, aides, administrators, and other personnel would staff the high school at maximum capacity.

Approximately 20 teachers, and additional support staff including aides, administrators, and other personnel would be required to staff the initial enrollment of 500 students in the first phase of the project. The District estimates that the high school's instruction hours would be from approximately 8:00 a.m. to 3:00 p.m. Extra-curricular activities would take place from approximately 3:00 p.m. to 7:30 p.m.

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, California 92530

Possible Building and Grounds Component	**Approximate Ground Area**
▪ School Administration and Student Support	5,500 SF
▪ Classrooms	97,200 SF
▪ Art, Music, Drama Classroom	17,800 SF
▪ Exercise, Lockers and Support	30,000 SF
TOTAL BUILDING GROUND AREA	150,500 SF
▪ Recreational Fields	23.5 AC
▪ Parking Lot and hardscapes	15.0 AC
▪ Bus Parking (approx. 4–12 bus spaces)	1.5 AC

A parking area for school buses would be included on the project site, contiguous to staff and student parking areas within appropriate portion of the school site for this purpose. Initially, it is anticipated that (4) buses would use this parking area. Capacity would be provided for up to (12) for special events or future busing needs. Buses routinely parked on this site would be those that currently serve the Bonsall High School demographic area.

Public transportation service for students attending the proposed new school is not anticipated. Vehicular access and circulation will be designed to provide safe access and comply with applicable governing authorities and regulations including all local, state, and federal requirements. Project site access would be provided via a new driveway on Gird Road with an onsite turn-around loop for pick-up/dropoff. Minor improvements to Gird Road will be required to add a north bound left turn lane pocket and southbound deceleration driveway transition. These improvements will require minor shoulder grading and 6,600 square feet of new pavement located with the county right of way. An encroachment permit is required from San Diego County Public Works to complete work within the right of way.

Literature Review

Prior to the site visits, the project location was reviewed and studied for information that would aid in determining the potential for wetlands; permanent, intermittent or ephemeral drainages; and the resources and project impacts associated with the wetland, riparian, or streambed resources on-site.

Project plans, topographic maps and satellite imaging, soil maps and a Geographic Information System (Global Mapper) were examined to establish an accurate project location, project description, potential drainages, wetlands, vegetation, watershed, soils, and surrounding land uses. Current and historic aerial imagery of the project area were reviewed for signs of stream activity. Changes in landscape, color, vegetation density, and drainage pattern were noted. Anthropogenic disturbances within the project area were also identified. Potential watercourses and related landform boundaries, such as changes in landscape color, vegetation densities, and drainage patterns, were then outlined on aerial photography. Transects were then selected for field verification of stream presence indicators.

Field Investigation

The project area was walked and assessed for riparian vegetation, wetlands, and jurisdictional drainages on June 9, 2016, September 22, 2017, and October 21, 2017. During the field surveys, selected transects were walked a minimum of 100 feet upstream and downstream, noting the presence or absence of fluvial activity, boundaries of geomorphic units, changes in plant species composition between different geomorphic units, photographing points of transition, and mapping the watercourse and watercourse boundaries. The guidelines followed are those established in the 2014 *Mapping Episodic Stream Activity (MESA) Field Guide*. Areas measured were also recorded using a hand-held Global Positioning System (GPS) for accurate location reference. Site photographs were also taken. Refer to **Appendix A**.

Furthermore, the presence of an ordinary high water mark was recorded. Where the presence of an OHWM was evident, a second measurement was taken for the width of the OHWM and recorded. The OHWM is defined as: "on non-tidal rivers, the line on the shore established by the fluctuations of water and indicated by the physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding area."

Where changes in plant community composition were apparent, the area was examined for the possibility of wetlands. Whether or not adjacent to WUS, the potential wetland area is evaluated for the presence of the three wetland indicators: hydrology, hydric soils and hydrophytic vegetation. The guidelines followed are those established in the 1987 *Army Corps of Engineers Manual.*

Results

Hydrology

The project site contains three unnamed tributaries to the San Luis Rey River. The San Luis Rey River is located within the San Luis Rey hydrologic unit, lower San Luis Rey hydrologic area and Bonsall hydrologic sub-area, as depicted in **Figure 4**. The San Luis Rey River is a perennial drainage that flows southwesterly through the project area. The project site contains three unnamed tributaries to the San Luis Rey River. These on-site ephemeral drainages flow southeast through the project site to an unnamed tributary to the San Luis Rey River which then flows south to the San Luis Rey River and ultimately into the Pacific Ocean.

Soils

The U.S. Department of Agriculture Natural Resources Conservation District's Web Soil Survey was consulted and indicates that the project site contains four soil types: Altamont clay (AtD), 9 to 15 percent slopes; Grangeville fine sandy loam (GoA), 0 to 2 percent slopes; Ramona sandy loam (RaC), 5 to 9 percent slopes; and Ramona sandy loam (RaD2), 9 to 15 percent slopes. Refer to **Appendix B**.

Vegetation

The dominant vegetation within the portion of the unnamed ephemeral drainage channels within the project site primarily consists of riparian habitat dominated by *Salix laevigata* (red willow). Other dominant species found within this habitat type include *Salix lasiolepis* (arroyo willow), *Salix nigra* (black willow), *Baccharis pilularis* (coyote brush), *Baccharis salicifolia* (mulefat), *Carduus pycnocephalus* (Italian thistle), *Centaurea melitensis* (tocalote), *Conium maculatum* (poison hemlock), *Foeniculum vulgare* (fennel), *Hesperocnide tenella* (western stinging nettle), *Melilotus indicus* (yellow sweetclover), *Plantago* sp. (plantain), *Quercus agrifolia* (coast live oak), *Rubus ursinus* (California blackberry), *Sambucus* sp. (elderberry), and *Toxicodendron diversilobum* (poison oak).

California Department of Fish and Wildlife Jurisdiction

Three unnamed tributaries to the San Luis Rey River flow through the eastern portion of the project site. The on-site drainages are earthen-bottomed channels with earthen banks. Flows within the channels appear to be ephemeral. No water was present at the time that field investigation was conducted. Approximately 2.4 acres of ephemeral drainages and associated riparian habitat located on the project site would be considered California Department of Fish and Wildlife (CDFW) jurisdictional drainage features, which are regulated by Section 1602 of the California Department of Fish and Game Code. Refer to **Figure 5**. The State jurisdictional areas were determined by measuring from either the top of the physical bank or the upland edge of riparian vegetation.

The proposed Bonsall High School project was designed to avoid impacts to jurisdictional streambed and riparian habitat. The onsite development of Bonsall High School will not result in impacts to CDFW jurisdictional Waters of the State. Further, the offsite road improvements within the Gird Road right-of-way will avoid impacts to CDFW jurisdictional Waters of the State. The proposed Gird Road improvements will be conducted within the existing Gird Road right-of-way. Refer to **Figure 7**. Implementation of the project will not result in impacts to CDFW jurisdictional Waters of the State.

Waters of the United States

The proposed project site contains approximately 1.5 acres of “waters of the United States” that would be under the jurisdiction of the Federal Clean Water Act. Refer to **Figure 6**. The three ephemeral drainages that are located on the project site are tributary to the San Luis Rey River, which eventually flows to the Pacific Ocean, a Navigable Water of the United States. The “waters of the United States” were determined by identifying the ordinary high water mark within the channel. There are no adjacent wetlands associated with the onsite drainages.

The proposed Bonsall High School project was designed to avoid impacts to "waters of the United States." The onsite development of Bonsall High School will not result in impacts to “waters of the United States.” Further, the offsite road improvements within the Gird Road right-of-way will avoid impacts to “waters of the United States.” The proposed Gird Road improvements will be conducted within the existing Gird Road right-of-way. Refer to **Figure 7**. Implementation of the project will not result in impacts to “waters of the United States.”

Summary of Findings

The proposed project site contains three unnamed tributaries to the San Luis Rey River. The project area contains approximately 2.4 acres of CDFW jurisdictional streambed and approximately 1.5 acres of "waters of the United States." Implementation of the project will not result in impacts to CDFW jurisdictional Waters of the State and Corps/RWQCB jurisdictional Waters of the U.S.

Certification

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: October 27, 2017

Signed: Shawn Gatchel-Hernandez

Shawn Gatchel-Hernandez

Enclosures:
Figure 1: Location Map
Figure 2: Vicinity Map
Figure 3: Project Plan Map
Figure 4: Watershed Map
Figure 5: State Jurisdictional Map
Figure 6: Waters of the United States Map
Figure 7: Gird Road Jurisdictional Areas Map
Appendix A: Site Photographs
Appendix B: Soils Map

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, California 92530

FIGURES

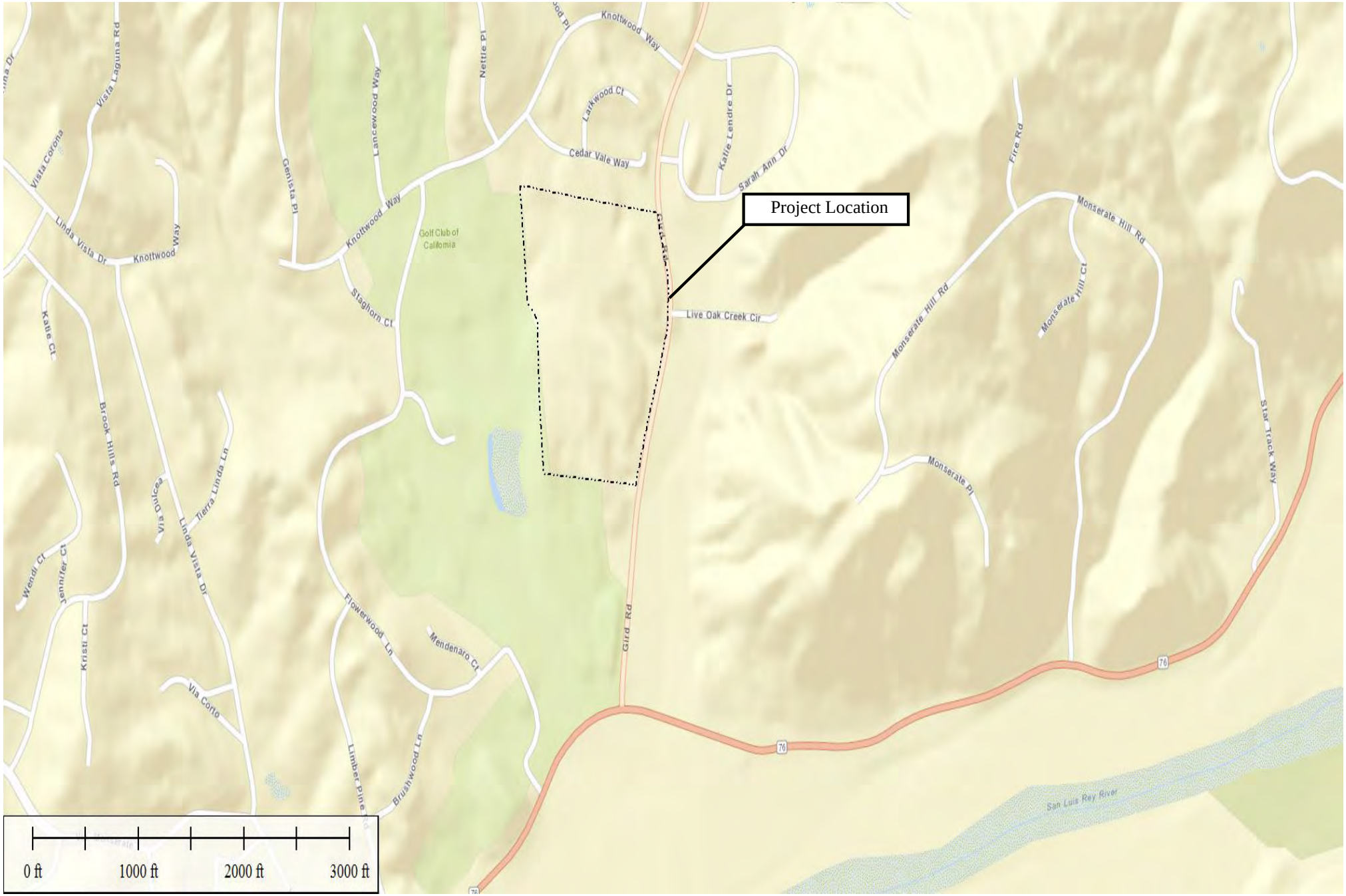


Figure 1
Location Map
Jurisdictional Delineation
Bonsall School District
APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

N

Hernandez Environmental Services

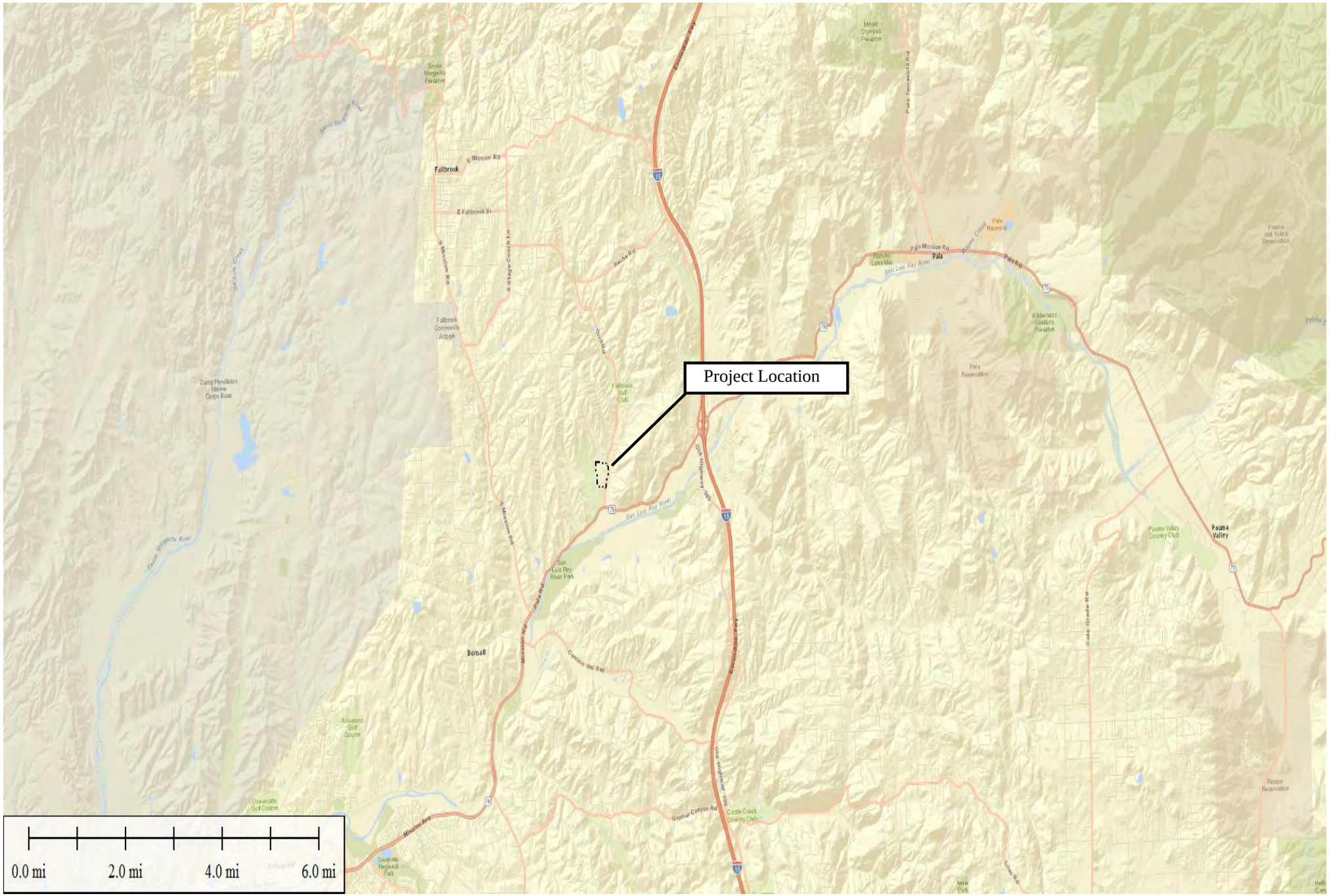


Figure 2
Vicinity Map
Jurisdictional Delineation
Bonsall School District
APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

N

Hernandez Environmental Services

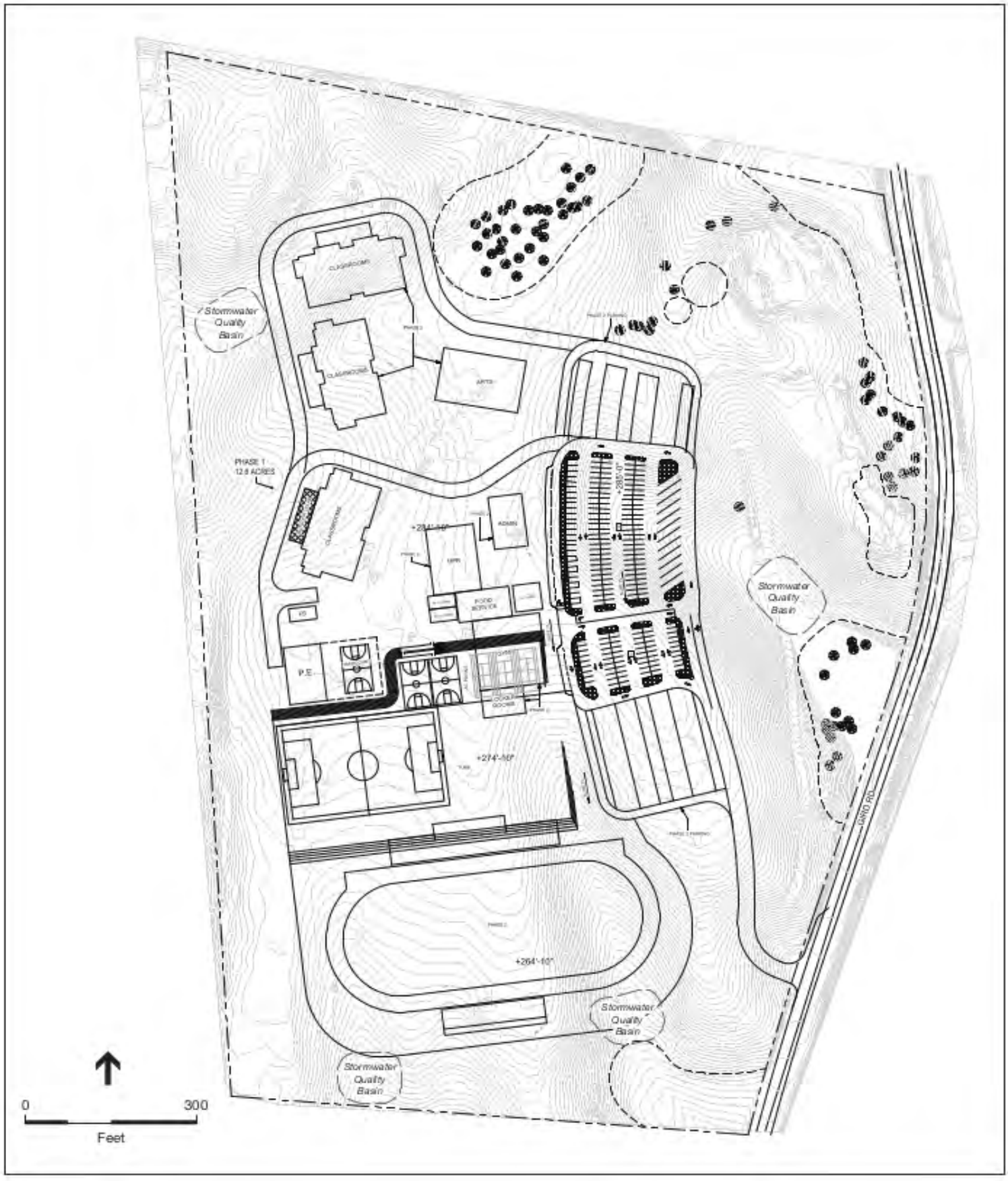


Figure 3

Project Plan Map
Jurisdictional Delineation
Bonsall School District
APN 1243403400
Bonsall, San Diego County, CA

N

Hernandez Environmental Services

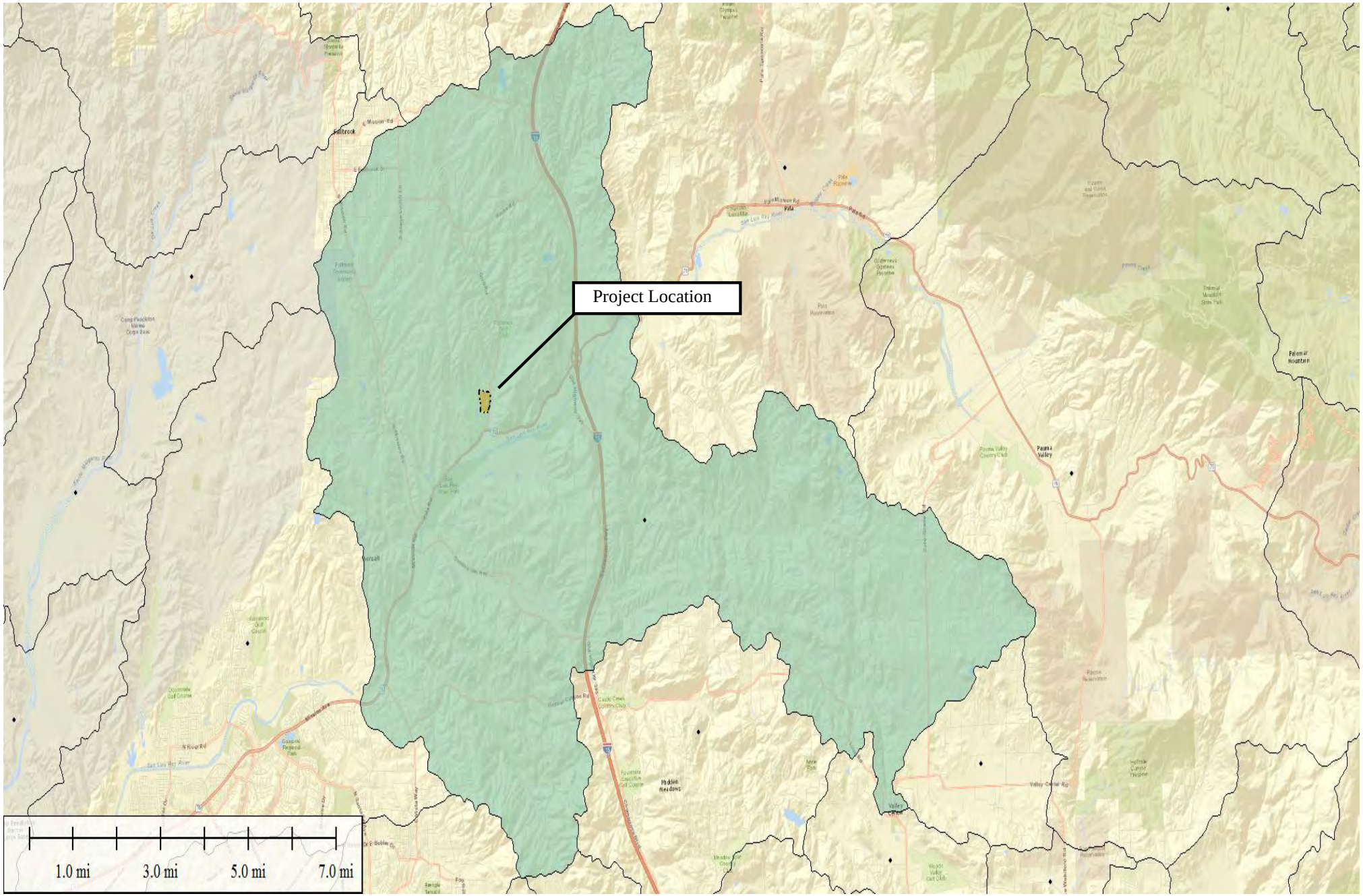


Figure 4
Watershed Map
Jurisdictional Delineation
Bonsall School District
APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

San Luis Rey Hydrologic Unit
Lower San Luis Rey Hydrologic Area
Bonsall Hydrologic Sub-area

N

Hernandez Environmental Services

Figure 5
State Jurisdictional Map
Jurisdictional Delineation
Bonsall School District
APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

2.4 Acres of Red Willow Dominant Habitat

N

Hernandez Environmental Services

Figure 6
Waters of the United States Map
Jurisdictional Delineation
Bonsall School District
APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

1.5 Acres of Waters of the United States

N

Hernandez Environmental Services

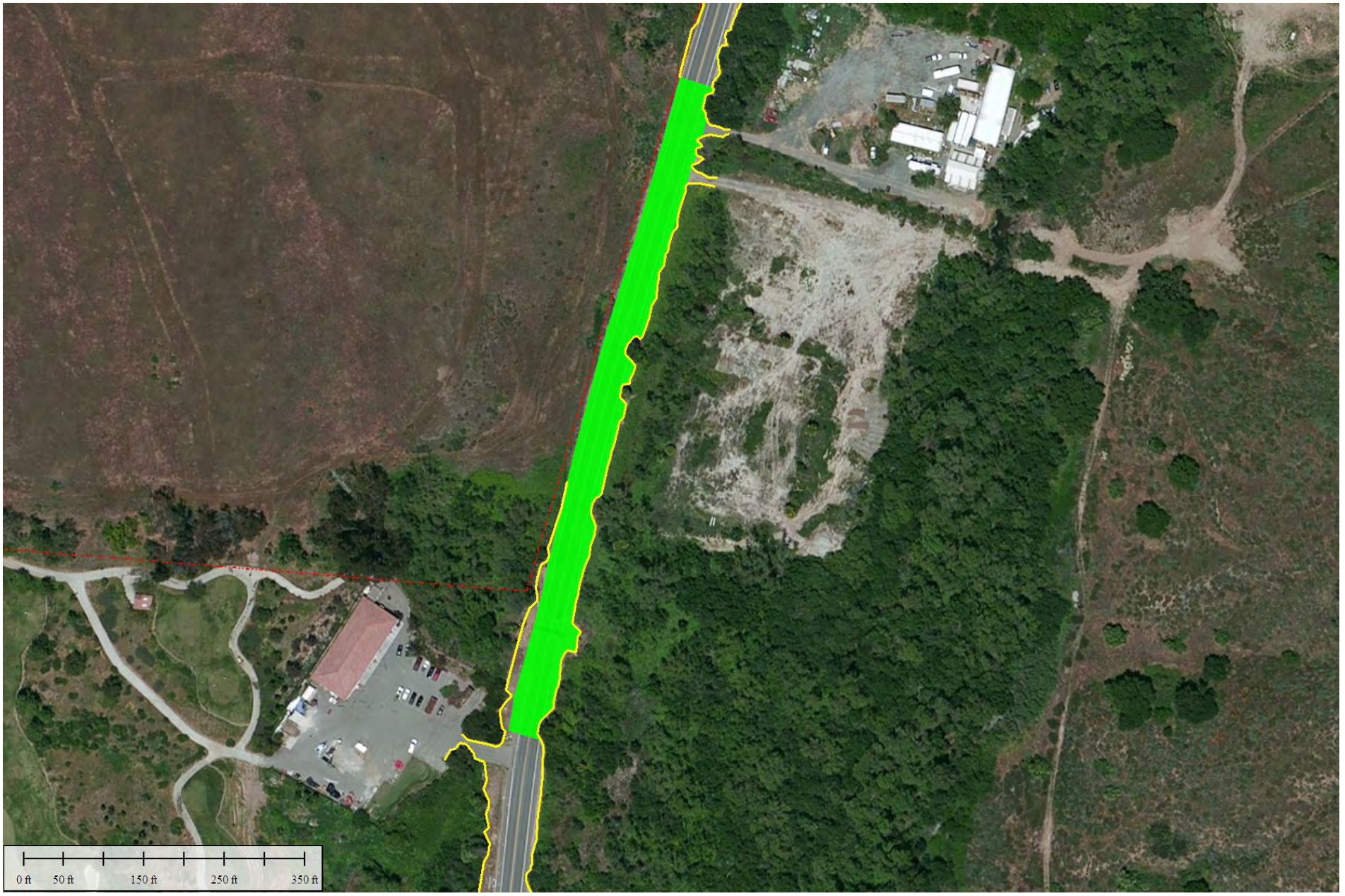


Figure 7
Gird Road Jurisdictional Areas Map
Biological Resources Technical Studies
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Bonsall Project Site

Limits of Jurisdictional Areas

Road Improvements Impact Areas

N

Hernandez Environmental Services

APPENDIX A

Bonsall High School

Assessor's Parcel Number 124-340-34-00
Jurisdictional Delineation

Hernandez Environmental Services

Red willow riparian habitat located on the northeast corner of the property.

Eucalyptus woodland and red willow riparian habitat located on the southeast corner of the property.

Bonsall High School

Assessor's Parcel Number 124-340-34-00
Jurisdictional Delineation

Hernandez Environmental Services

Red willow riparian habitat located in the center-east portion of property.

Red willow riparian habitat located in the center-east portion of the property. Photograph was taken from across Gird Road.

Bonsall High School

Assessor's Parcel Number 124-340-34-00
Jurisdictional Delineation

Hernandez Environmental Services

Ornamental vegetation habitat. Camphor tree (*Cinnamomum camphora*) is seen in this piscture.

North side of property facing south. Non-native grassland habitat.

APPENDIX B

Soil Map—San Diego County Area, California
(Soil Map)

Map Scale: 1:3,530 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 9, Sep 17, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

San Diego County Area, California (CA638)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AtD	Altamont clay, 9 to 15 percent slopes	1.8	3.6%
GoA	Grangeville fine sandy loam, 0 to 2 percent slopes	2.0	4.2%
RaC	Ramona sandy loam, 5 to 9 percent slopes	33.5	69.6%
RaD2	Ramona sandy loam, 9 to 15 percent slopes, eroded	10.9	22.6%
Totals for Area of Interest		**48.2**	**100.0%**

Appendix E
Botanical Survey

ESA

Botanical Survey

for

Bonsall High School

(Assessor's Parcel Number 124-340-34-00)

***Prepared for*:**

Bonsall Unified School District
31555 Old River Road
Bonsall, California 92003
Phone: (760) 631-5200
Contact: David Medcalf

Prepared by:

Hernandez Environmental Services

17037 Lakeshore Drive
Lake Elsinore, California 92530
Phone: (951) 334-6219
Contact: Shawn Gatchel-Hernandez

June 2016

TABLE OF CONTENTS

1.0 Introduction 3
1.1 Project Location 3
1.2 Project Description 3

2.0 Methodology 5
2.1 Background Analysis 5
2.2 Field Surveys 6

3.0 Existing Conditions 6

4.0 Results 8

5.0 Literature Cited 9

FIGURES

Figure 1 – Location Map
Figure 2 – Vicinity Map
Figure 3 – Project Plans
Figure 4 – Habitat Map
Figure 5 – Suitable Habitat Map
Figure 6 – Marginal Habitat Map

APPENDICES

Appendix A – Flora Observed
Appendix B – Soils Map

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, California 92530

1.0 Introduction

On behalf of Bonsall Unified School District, Hernandez Environmental Services (HES) has conducted a Botanical Survey for the approximate 48-acre project site located within the community of Bonsall, within an unincorporated area of northern San Diego County, California. The California Consortium of Herbaria and the California Natural Diversity Database (CNDDB) records indicate that populations of San Diego Ambrosia (*Ambrosia pumila*) have occurred in the area of Bonsall. Further, the Biological Resources Assessment recommended conducting botanical surveys for this species. The purpose of conducting the botanical surveys is to document the presence of San Diego Ambrosia on the project site. This report summarizes the results of the 2017 botanical surveys on the Bonsall High School project site.

1.1 Project Location

The project site is located west of the intersection of Gird Road and Live Oak Creek Circle and north of State Route 76 within the community of Bonsall (Figure 1, Location Map). The project area is situated within an unincorporated area of north San Diego County between the community of Fallbrook to the north, the City of Oceanside to the west, the community of Valley Center to the west, and the North County Metropolitan Subregion and City of Vista to the south (Figure 2, Vicinity Map). Overall access to the area is provided by State Route 76. Land uses surrounding the project site include residential development to the north, a golf course to the south and west, and vacant lands and residential development to the east.

The project site is located within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Bonsall* Quadrangle. The project site is gently rolling, with an elevation range of approximately 230 to 300 feet above mean sea level (MSL). The on-site drainages flow southeast into a tributary to the San Luis Rey River. The approximate center of the project site is located at 33°19'19.85"N, 117°11'44.22"W.

1.2 Project Description

The project would construct a new high school for grades 9-12 with a maximum enrollment of 1,500 students and a maximum of 60 staff (teachers, aides, administrators, and other school personnel). The project would provide approximately 150,500 square feet (sf) building floor area and approximately 21.4 acres of recreational fields, parking, and landscape/hardscape (Figure 3). The proposed buildings include permanent classrooms, administrative offices, media centers, and gymnasium. The project would also include recreational fields and facilities for community use after school hours, weekends, and holidays.

All proposed project structures would be developed to a maximum height of 34 feet. Proposed project building elevations would vary up to 34 feet in height, and the final building elevations would be subject to approval of BUSD Board of Trustees as part of the entitlement process.

A passenger pick-up and drop-off area with seat walls (short walls that can function as seating) would be located along the west side of the campus, along Gird Road. The project would include a lunch shelter

with an adjacent event space (assembly plaza), mounded lawn with tiered seat walls at the event plaza. The site would include an outdoor collaboration courtyard, fitness pavilion, and arts courtyard.

The project would include a football field and running track, soccer field, natural turf playing fields, and a fitness pavilion with asphalt basketball courts.

The buildings would be of modern design and include contemporary features such as corrugated metal siding, fiber cement plank siding, fiber cement panels, aluminum storefront and glazing, corrugated metal roofing, and fiber cement plank screens. Exterior colors would be varied neutral colors of tans, browns, and light blue.

PROJECT COMPONENTS

Building/Facility	Number of Floors	Ground Area (SF/Acres)	Total Building Area (SF)
Administration/Student Support	1	5,500 sf	5,500 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building & Learning Commons	2	16,200 sf	32,400 sf
Classroom Building – Art, Music, Drama, Food Service	1	17,800 sf	17,800 sf
Gymnasium/Lockers/Support	1	30,000 sf	30,000 sf
Total – Buildings		**3.2 acres/101,900 sf**	**150,500 sf**
Recreational Fields/Track/Field Building	-	3.4 acres	-
Landscape/Hardscape/Sports Courts	-	12.2 acres	-
Parking Lot/Bus Parking/Driveway	-	5.8 acres	-
Total Improvements - Non-Buildings	**-**	**21.4 acres**	**-**
Golf Course Encroachment		1.9 acres	
Total – Disturbed Area	**-**	**24.6 acres***	**-**
Total – Undisturbed Open Space Area	**-**	**22.4 acres***	
Total – Project Site	**-**	**48.9 acres****	
Offsite Improvements – Gird Road	**-**	**0.1 acres**	**-**

* Does not include existing golf course encroachment area.
** Does not include Gird Road easement area.
SOURCE: BakerNowicki design studio, 2017

The project site would be used on occasional weekends and weekday during non-school hours for sporting events, including: soccer, basketball, volleyball, and track and field. Stadium seating is not proposed for the athletic fields and athletic field light lighting is not proposed. The project site would also be used for occasional large public events such as graduation ceremonies. These large events would not occur more than a few times per school year.

Regional access to the site would be provided by I-15 via SR-76. Project site access would be provided via a new driveway on Gird Road with an onsite turn-around loop for pick-up/dropoff. The northbound left turn pocket in Gird Road would be 150 feet long as part of the project. The access driveway would be stop-sign controlled (i.e. drivers exiting the school onto Gird Road would encounter the stop sign).

Acceleration and deceleration transition areas are proposed north and south of the access driveway on the west side of Gird Road. Sidewalks are not proposed along Gird Road. No other improvements to Gird Road are planned as part of the proposed project. Minor improvements to Gird Road will be required to add a north bound left turn lane pocket and southbound deceleration driveway transition. These improvements will require minor shoulder grading and 6,600 square feet of new pavement located with the county right of way. An encroachment permit is required from San Diego County Public Works to complete work within the right of way.

A driveway extending from the parking lot to the food service building would provide fire/emergency access in addition to food delivery service access. There are bicycle lanes on Gird Road; however, no other bike or pedestrian access would be provided to the project site.

The project includes 60 stalls for staff/visitor parking and 139 stalls for student parking. A parking area for up to 12 school buses would be included on the project site contiguous to staff and student parking areas. Some students within the District would be bused to the high school, including students from the Pala Reservation and eastern Oceanside.

Construction of the project would be completed in two phases. Phase 1 and Phase 2 grading and site preparation and undergrounding of utilities is expected to commence in late 2019 and would last approximately three months. Building construction and development of the driveway, parking lot, landscaping, and lighting would last approximately 13 months. Phase 2 building construction and landscaping would begin in spring 2023. Phase 1 would be operational by summer 2021 and Phase 2 would be operational by summer 2025.

Project grading would be balanced onsite and would not require import or export material to create finished pads for building construction. The design and construction of the proposed project has been developed to adhere to State of California Department of Education design requirements and San Diego County Code (Gird Road improvements).

Project construction personnel and equipment onsite would vary depending on the construction task, and would include a range of construction trades and equipment, including grading, drainage, underground utilities, paving, building construction, lighting, landscaping and fencing. An average of 50 construction personnel would be expected to be onsite at any given time during the construction phase.

2.0 Methodology

2.1 Background Analysis

Pertinent plant records were reviewed prior to undertaking field surveys. The analysis included a review of records from the following sources:

- A review of collection records from participating herbaria in California available through the Consortium of California Herbaria, 2017;
- Documented rare plant occurrences compiled in the California Natural Diversity Data Base (CNDDB) by the California Department of Fish and Wildlife, 2017;

- A review of documented occurrences of common and rare plants for California in Calflora, 2017;
- Species descriptions from the Jepson Online Interchange, 2017;
- Soils data from the Natural Resources Conservation Service and available from the Web Soil Survey, 2017; and,
- Aerial photographs from Google Earth, ESRI, Digital Globe, GeoEye, US Department of Agriculture, US Geological Survey, i-cubed, Aerogrid and Getmapping.

The background analysis yielded data that were compiled in a Geographic Information System (GIS). These data were modified and uploaded to a Trimble Juno GNSS device for use in the field as reference and for collecting field data. Several paper maps were also made from the data, which were printed for use during the surveys.

2.2 Field Surveys

Biologist Ron Clark conducted botanical surveys on two non-consecutive days over the growing season

in 2017 (a good rainfall year). The surveys were conducted on 22 April and 3 May. The biologist surveyed the site using roughly parallel east-west transects to detect flowering plants by covering as much of the property as possible. The second survey was focused on areas within the project site with the most suitable habitat based on the previous assessment. The biologist noted weather and site conditions and recorded plants detected. Plants not readily identified in the field were collected and pressed and keyed out later.

Weather conditions were as follows:

- 22 April 2017 – Temperatures ranged from high 60s to 89 degrees Fahrenheit, clear, with wind speeds ranging from 3 to 10 miles per hour southwest, and no detectable precipitation.
- 3 May 2017 – Temperatures ranged from low 60s to 78 degrees Fahrenheit, clear, with wind speeds ranging from 3 to 10 miles per hour west-southwest, and no detectable precipitation.

3.0 Existing Conditions

The Bonsall High School project site is vacant and contains six different habitat types, including non-native grassland, red willow, eucalyptus woodland, coast live oak woodland, ornamental vegetation and mulefat dominant vegetation. The project site contains three unnamed tributaries to the San Luis Rey River. These on-site ephemeral drainages flow southeast through the project site to an unnamed tributary to the San Luis Rey River which then flows south to the San Luis Rey River and ultimately into the Pacific Ocean. Surrounding land uses include residential uses to the north, a golf course to the

south and west, and residential/ranch homes to the east. State Route 76 runs adjacent to the east side of the project site.

Four soil types are documented to occur on the project site: Altamont clay (AtD), 9 to 15 percent slopes; Grangeville fine sandy loam (GoA), 0 to 2 percent slopes; Ramona sandy loam (RaC), 5 to 9 percent slopes; and Ramona sandy loam (RaD2), 9 to 15 percent slopes. The project site topography is gently rolling with elevations ranging from 230 to 300 feet amsl (Appendix B).

A total of six habitat types were observed on the 48-acre project site, including 40.7 acres of non-native grassland, 2.84 acres of red willow dominant habitat, 2.78 acres of eucalyptus woodland, 1.2 acres if coast live oak woodland, 0.44 acre of ornamental vegetation, and 0.04 acre of mulefat dominant vegetation (Figure 4).

Non-native Grassland

The project site contains approximately 40.7 acres of disturbed, non-native grassland dominant habitat. The property has been disturbed in the past and ongoing maintenance prevents plant species from establishing fully. These areas are cleared and grazed regularly. This habitat type is dominated by non-native species. Dominant species found in this habitat type include *Avena barbata* (slim oat), *Brassica nigra* (black mustard), *Bromus diandrus* (ripgut brome), *Bromus madritensis ssp. rubens* (Foxtail brome), *Hordeum vulgare* (common barley), *Amaranthus albus* (tumbleweed), *Chenopodium murale* (nettle leaf goosefoot), *Erigeron canadensis* (Canada horseweed), *Erodium* sp. (filaree), *Hirschfeldia incana* (mustard), and *Hazardia squarrosa* (saw-toothed goldenbush). This vegetation community is classified as Tier III by the MSCP.

Red Willow Dominant Habitat

The project site contains approximately 2.84 acres of habitat dominated by *Salix laevigata* (red willow). Four main areas associated with an ephemeral stream or the golf course contain this habitat type. Other dominant species found within this habitat type include *Salix lasiolepis* (arroyo willow), *Salix nigra* (black willow), *Baccharis pilularis* (coyote brush), *Baccharis salicifolia* (mulefat), *Carduus pycnocephalus* (Italian thistle), *Centaurea melitensis* (tocalote), *Conium maculatum* (poison hemlock), *Foeniculum vulgare* (fennel), *Hesperocnide tenella* (western stinging nettle), *Melilotus indicus* (yellow sweetclover), *Plantago* sp. (plantain), *Quercus agrifolia* (coast live oak), *Rubus ursinus* (California blackberry), *Sambucus* sp. (elderberry), and *Toxicodendron diversilobum* (poison oak). This vegetation community is classified as Tier I by the MSCP.

Eucalyptus Woodland

The project site contains approximately 2.78 acres of eucalyptus woodland dominant habitat. These areas are located on the north and south portions of the property. The dominant tree species within this habitat type are *Eucalyptus camaldulensis* (red gum) and *Eucalyptus globulus* (blue gum). This vegetation community is classified as Tier IV by the MSCP.

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, California 92530

Coast Live Oak Woodland
The northern portion of the project site contains approximately 1.2 acres of *Quercus* agrifolia var. agrifolia (coast live oak) dominant habitat. This vegetation community is classified as Tier I by the MSCP.

Ornamental Vegetation
The project site contains a small area dominated by non-native ornamental trees. This vegetation community is classified as Tier IV by the MSCP.

Mulefat Dominant Vegetation
The project site contains a small area adjacent to the golf course that is dominated by 0.04 acres of mulefat. The area does not appear to be part of a stream and is probably there due to a water source from the golf course. Other species seen in this habitat type include *Salix lasiolepis*, *Baccharis pilularis*,

Carduus pycnocephalus, *Centaurea melitensis*, *Hesperocnide tenella*, *Melilotus indicus*, and *Sambucus* sp. This vegetation community is classified as Tier I by the MSCP.

4.0 Results

San Diego ambrosia (*Ambrosia pumila*) is a perennial herb that grows from an underground rhizome. It is found on sandy loam or clay, sometimes on alkaline soils. It is found in chaparral, coastal sage scrub, valley and foothill grassland and around vernal pools. It can occur in lightly disturbed areas if conditions are right. San Diego ambrosia flowers from April through October at elevations from 20 to 415 meters above mean sea level (AMSL) (65 to 1400 feet).

Threats to the species include loss of habitat to agriculture and farming, as well as development, road improvement and competition with non-native plant species. San Diego ambrosia is listed as endangered by the USFWS and is on List 1B.1 of the CNPS Inventory. It is not listed by the CDFW.

Suitable habitat consists of open areas at the periphery of a water source. Areas within the northwestern and eastern portions of the site contain suitable habitat. In addition, areas along the western project site boundary consisting of irrigated soils adjoining the golf course could also provide suitable habitat. Refer to Figure 5. Further, marginal habitat occurs on the site where small stands of trees could potentially provide a more shaded and slightly wetter habitat (Figure 6).

The San Diego ambrosia was not found on the project site during the botanical surveys. A complete list of plants observed is included in Appendix A. No other sensitive plants were detected during the surveys.

Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, California 92530

5.0 Literature Cited

California Native Plant Society (CNPS). 2001. CNPS Botanical Survey Guidelines.

Consortium of California Herbaria. 2017. Species Voucher Data. Available online at: http://ucjeps.berkeley.edu/consortium/. Accessed on March 20, 2017.

CDFG (California Department of Fish and Game). 2014 (October). *Natural Communities List.* The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California.

CDFG (California Department of Fish and Game). 2014 (October). *Endangered Threatened and Rare Plants.* The Resources Agency of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, California.

California Department of Fish and Wildlife (CDFW), Natural Diversity Database (CNDDB). Accessed February 2015. Sensitive Element Record Search for the La Jolla Quadrangle. California Department of Fish and Wildlife, Sacramento, California.

County of San Diego. September 20, 2006. Sensitive Plant List. Retrieved from: http://www.sandiegocounty.gov.

Hickman, J.C. 1993. The *Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, California.

Holland, R.F. 1986 (updated 1996). *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Non-game Heritage Program. California Department of Fish and Game. Sacramento, California.

Keil, David J. 2017. *Ambrosia pumila*, in Jepson Flora Project (eds.) *Jepson eFlora*, http://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=832, accessed on May 29, 2017.

Munz, P.A. 1974. *A Flora of Southern California.* University of California Press. Berkeley, California.

Reed, P.B. 1988. *National List of Plant Species That Occur in Wetlands*: California (Region 0). National wetlands Inventory, U.S. Fish and Wildlife Biological Report 88 (26.9).

Sawyer, J.O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, California.

Tibor, D.P. 2001. California *Native Plant Society's Inventory of Rare and Endangered Plants of California*. California Native Plant Society. Special Publication, No. 1, 6th ed.

USFWS (United States Fish and Wildlife Service). 1993 (Sep 30). *Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review*. Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C.

USFWS (United States Fish and Wildlife Service). 1994 (Nov 15*). Endangered or Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species.* Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C.

USFWS (United States Fish and Wildlife Service). 1997c (Oct. 31*). Endangered or Threatened Wildlife and Plants.* Federal Register 50 CFR Part 17. U.S. Department of the Interior. Washington, D.C.

Figure 1
Location Map
Botanical Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Site Boundary

N

Hernandez Environmental Services

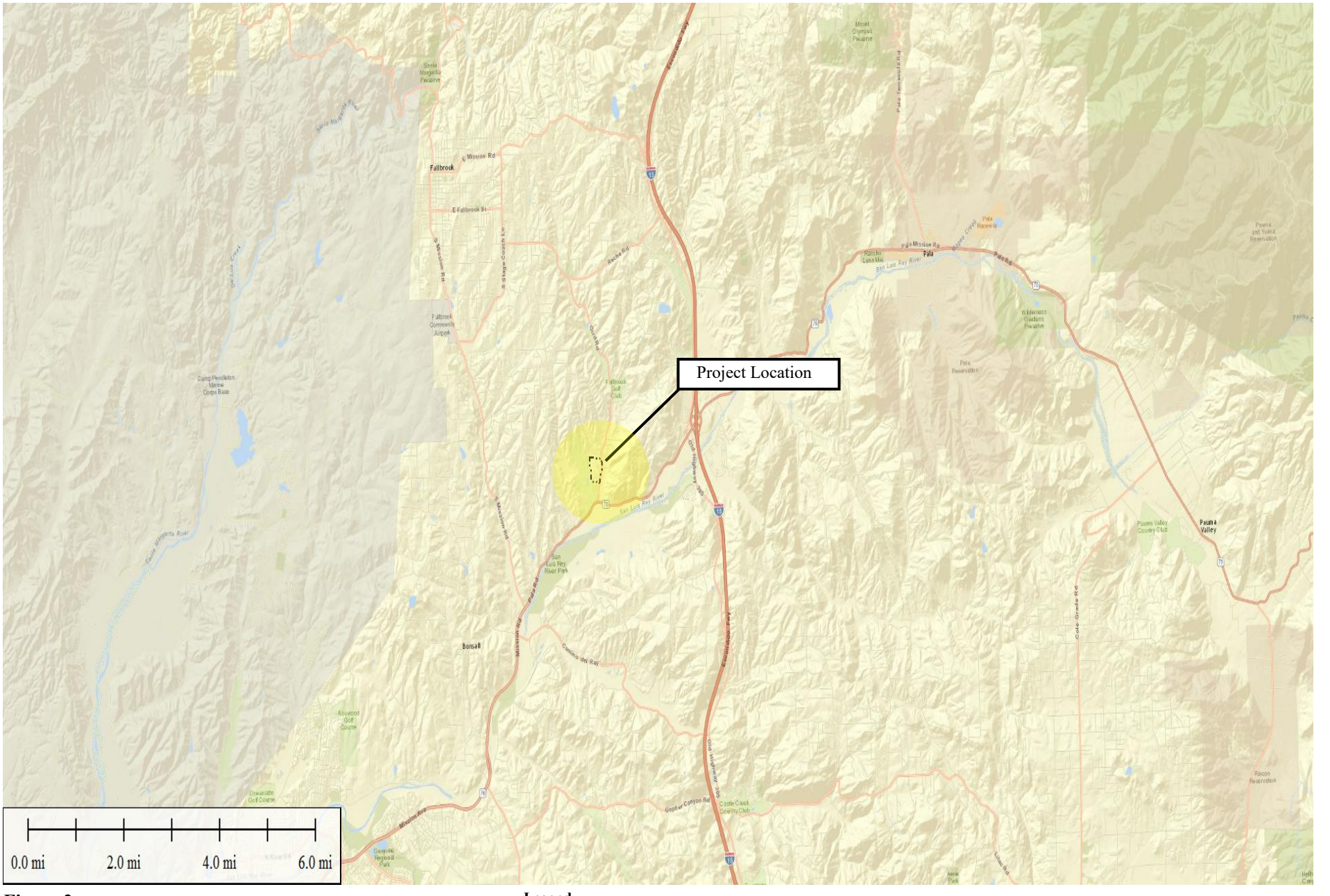


Figure 2
Vicinity Map
Botanical Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Hernandez Environmental Services

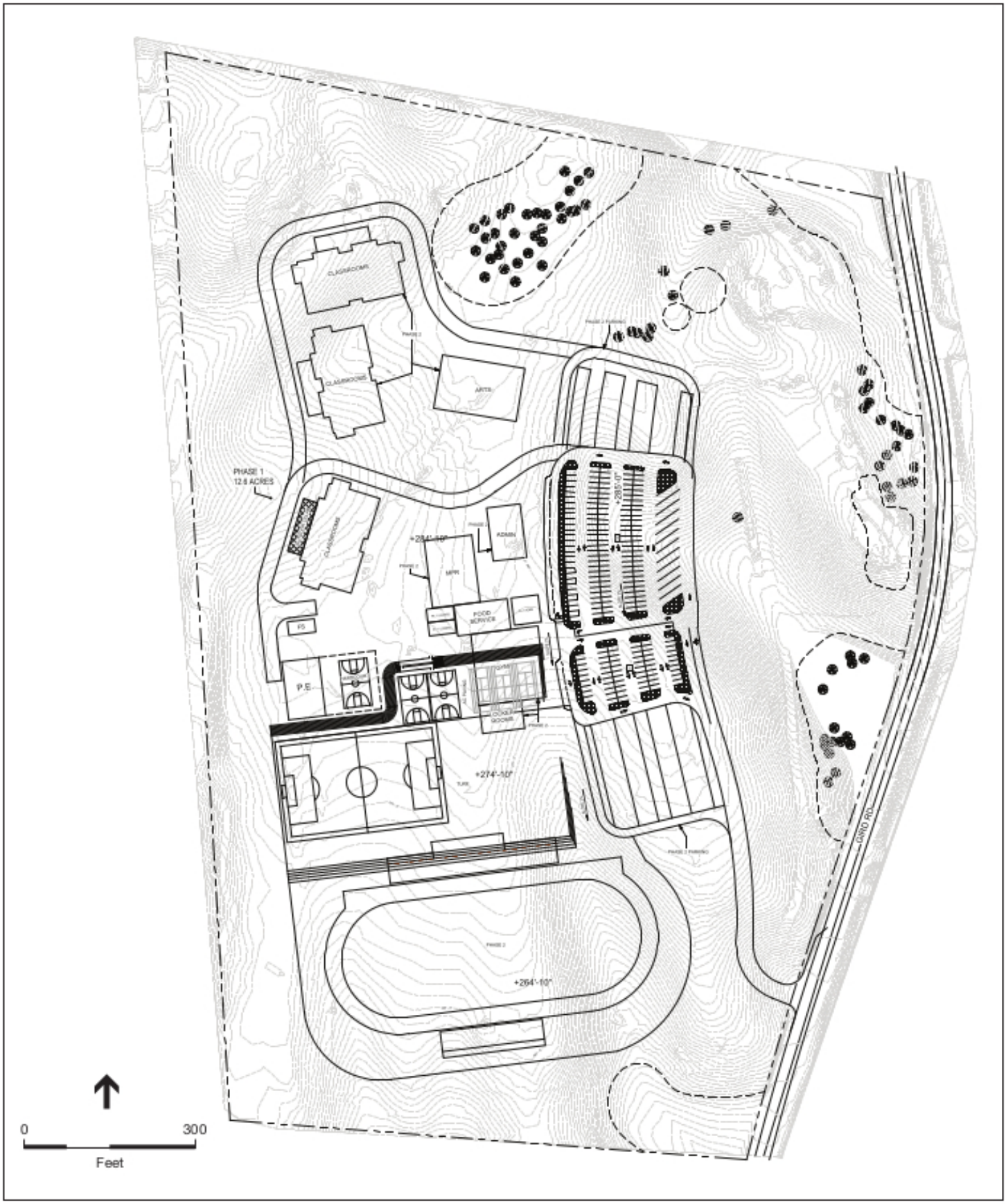


Figure 3
Project Plan Map
Botanical Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

N

Hernandez Environmental Services

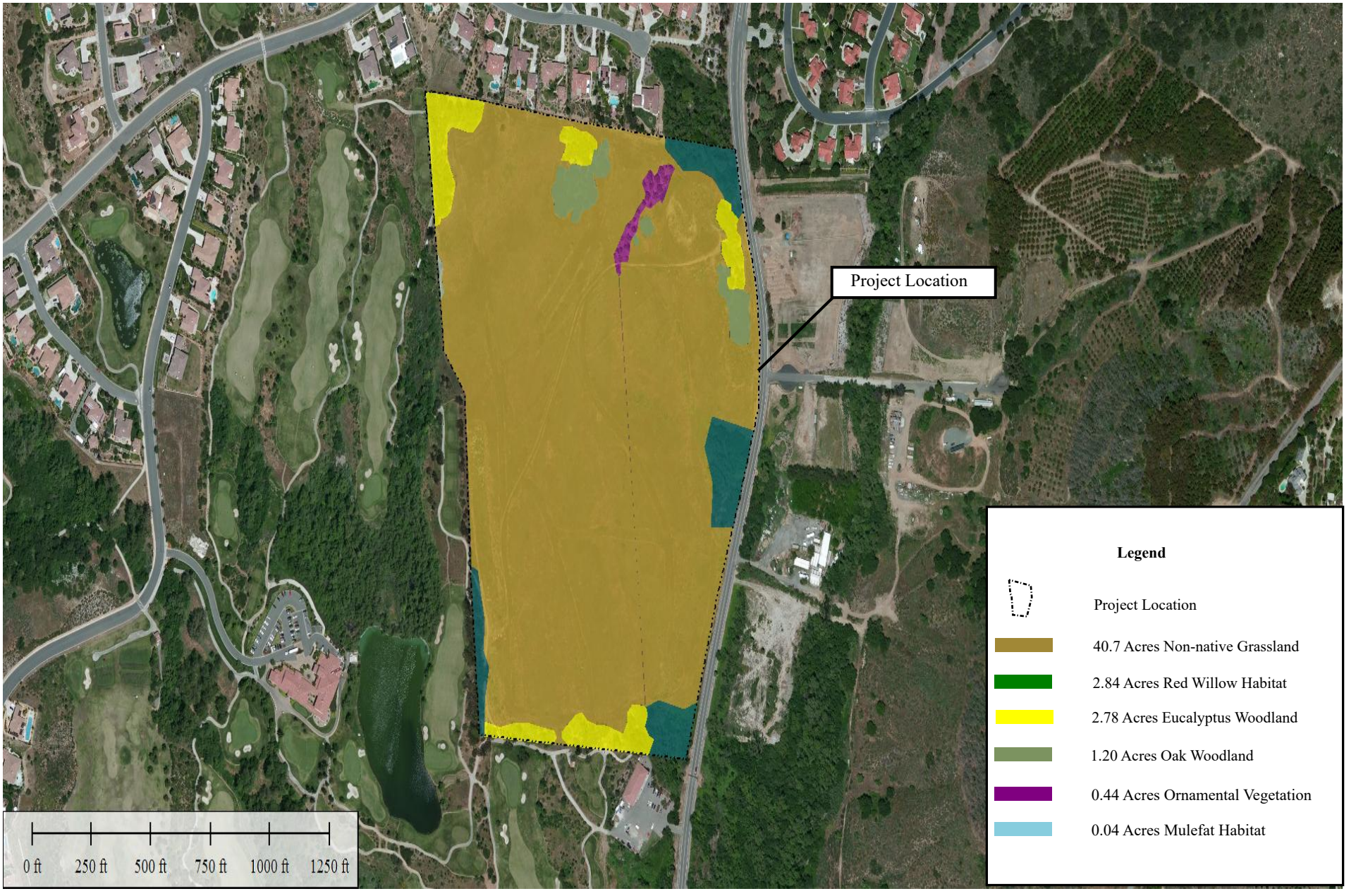


Figure 4
Habitat Map
Botanical Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Hernandez Environmental Services

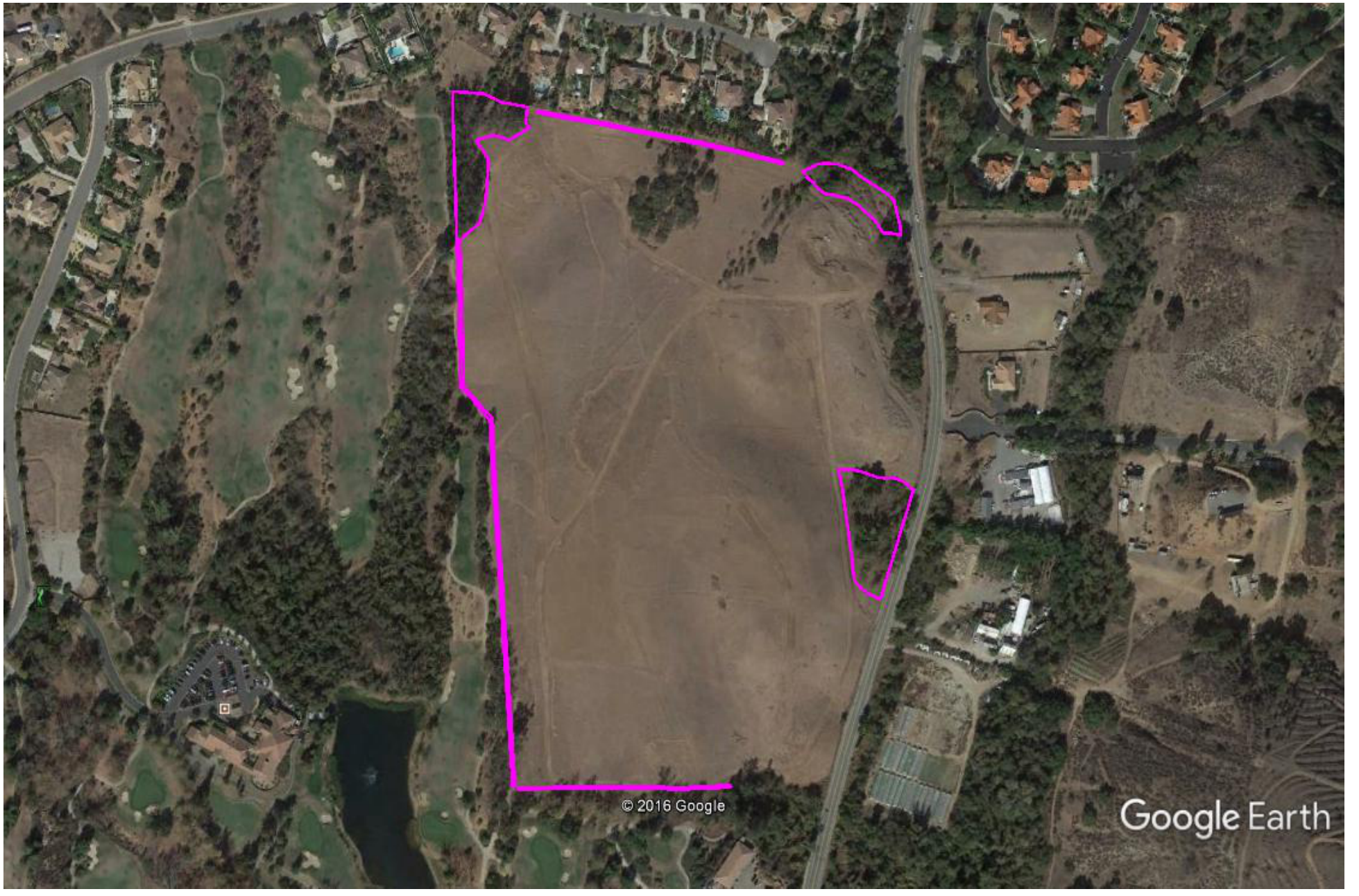


Figure 5
Suitable Habitat Map
Botanical Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Suitable Habitat Areas

N

Hernandez Environmental Services

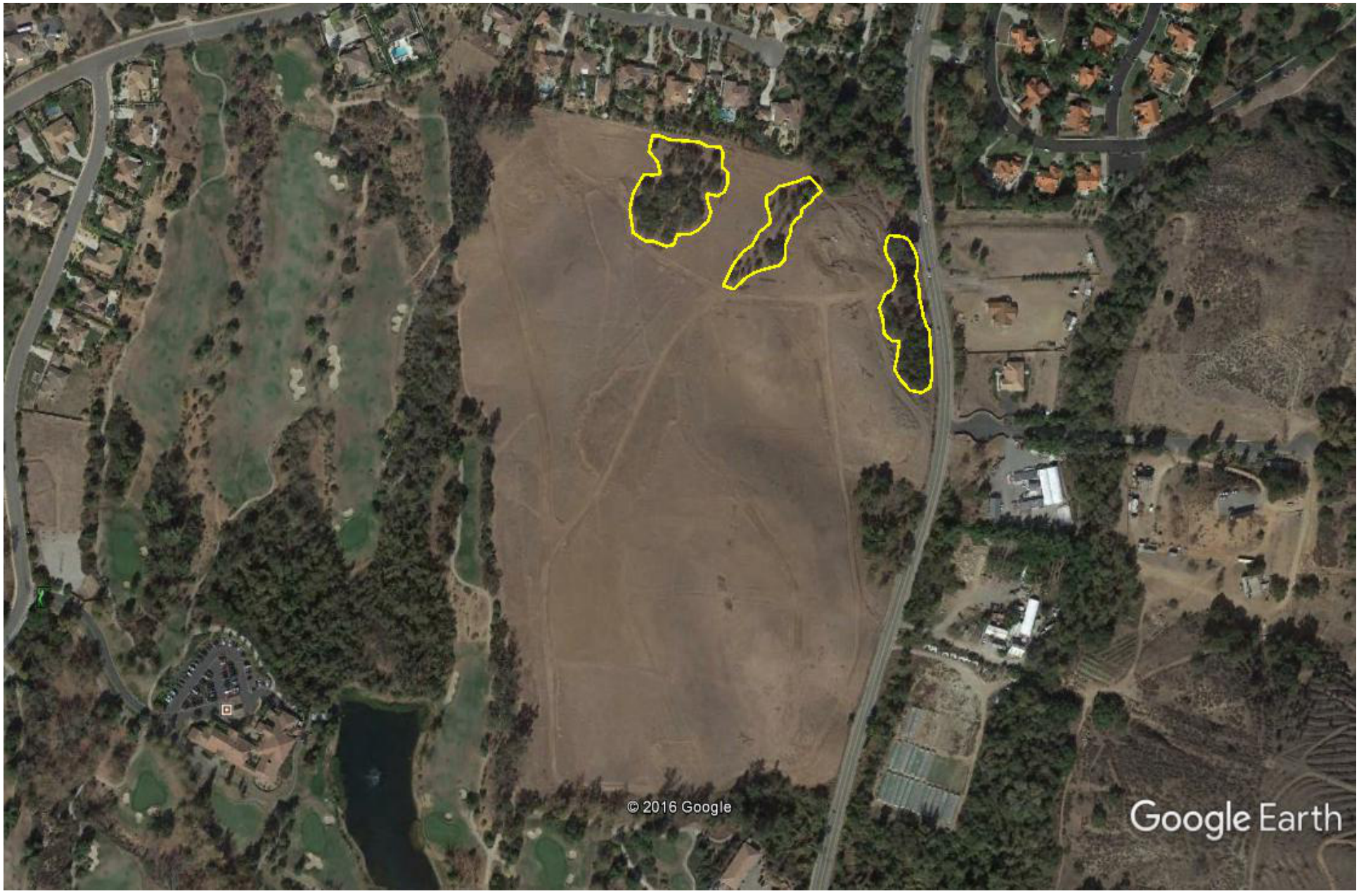


Figure 6
Marginal Habitat Map
Botanical Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Marginal Habitat Areas

N

Hernandez Environmental Services

APPENDIX A

Scientific Name	Common Name
Acmispon americanus	American Bird's Foot trefoil
Acmispon maritimus	Coastal Lotus
Amsinckia	Fiddleneck
Anagallis arvensis	Scarlet pimpernel
Anemopsis californica	Yerba Mansa
Artemisia californica	California Sagebrush
Atriplex semibaccata	Australian Saltbrush
Avena fatua	Wild Oat
Avena sativa	Common Oats
Baccharis pilularis	Coyote Brush
Baccharis salicifolia	Mule Fat
Bromus hordeaceus	Soft Brome
Bromus madritensis	Foxtail Chess
Bromus tectorum	Cheatgrass
Calystegia macrostegia	Island False Bindweed
Castilleja densiflorus	Denseflower Indian paintbrush
Centaurea melitensis	Maltese star Thistle
Chenopodium album	Lamb's quarters
Cirsium vulgare	Bull Thistle
Conium maculatum	Poison Hemlock
Convolvulus arvensis	Field Bindweed
Croton setigerus	Turkey mullein
Cucurbita foetidissima	Calabazilla
Deinandra fasciculata	Clustered Tarweed
Encelia californica	Bush Sunflower
Eriogonum fasciculatum	California Buckwheat
Eucalyptus globulus	Blue Gum
Eucalyptus sideroxylon	Red Iron Bark
Festuca myuros	Rattail Sixweeks grass
Gnaphalium palustre	Lowland Cudweed
Hedypnois cretica	Cretanweed
Helminthotheca echioides	Bristly ox-tounge
Hypochaeris radicata	Hairy Cats Ear
Lactuca Serriola	Prickly Lettuce
Lessingia filaginifolia	Common Sandaster
Logfia gallica	Narrowleaf Cottonrose
Lolium perenne	Italian Rye Grass
Lupinus bicolor	Annual Lupine

Scientific Name	Common Name
Melilotus indicus	Annual Yellow Sweetclover
Prunus ilicifolia	Holly Leaf Cherry
Quercus agrifolia	California Live Oak
Quercus suber	Cork Oak
Raphanus sativus	Cultivated Radish
Rhus integrifolia	Lemonade Berry
Rubus ursinus	California Blackberry
Rumex crispus	Curly Dock
Salix lasiolepis	Arroyo Willow
Schoenoplectus sp.	Scrirpes
Silene gallica	Common Catchfly
Silybum marianum	Blessed Milkthistle
Sisymbrium irio	London Rocket
Sisymbrium orientale	Indian Hedge Mustard
Sisyrinchium bellum	Western Blue Eyed Grass
Spergularia rubra	Purple Sand Spurry
Tamarix ramosissima	Saltcedar
Toxicodendron diversilobum	Poison Oak
Vicia sativa	Spring Vetch
Vitis girdiana	Desert Wild Grape

APPENDIX B

Soil Map—San Diego County Area, California
(Soil Map)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 9, Sep 17, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

San Diego County Area, California (CA638)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AtD	Altamont clay, 9 to 15 percent slopes	1.8	3.6%
GoA	Grangeville fine sandy loam, 0 to 2 percent slopes	2.0	4.2%
RaC	Ramona sandy loam, 5 to 9 percent slopes	33.5	69.6%
RaD2	Ramona sandy loam, 9 to 15 percent slopes, eroded	10.9	22.6%
Totals for Area of Interest		**48.2**	**100.0%**

Appendix F
Small Mammal Trapping Report

ESA

STEPHENS' KANGAROO RAT
AND
DULZURA POCKET MOUSE
PRESENCE/ABSENCE TRAPPING STUDIES
BONSALL HIGH SCHOOL
SAN DIEGO COUNTY, CALIFORNIA

Assessor's Parcel Number
124-340-34-00

Survey Area ~50 Acres

Prepared by:

ENVIRA
P. O. Box 2612
Ramona, CA 92065
Phone 619-885-0236
E-mail phvergne@aol.com

Trapping Surveys Conducted On:

March 2nd to 7th, 2017

Report Date:

April 3, 2017

This report was prepared in accordance with professional requirements and recommended protocols for small mammal trapping studies (USFWS Permit TE068072-3).

Philippe Jean Vergne, Field Biologist and Author

DRAFT

TABLE OF CONTENTS

INTRODUCTION **2**

1.0 METHODS **3**

1.1 3

Literature Review 3

1.2 General Biological Surveys 3

1.3 Focused Surveys 4

2.0 EXISTING CONDITION **4**

2.1 Weather Conditions 4

2.2 Topography and Soils 5

2.3 Surrounding Land Uses 5

2.4 Plant Communities 5

2.5 Wildlife 5

2.6 Sensitive Biological Resources 5

2.6.1 Stephens' Kangaroo Rat *6*

2.6.2 Dulzura Pocket Mouse *6*

2.7 Trap Site Description 6

3.0 ..... **7**

FOCUSED TRAPPING SURVEY RESULTS **7**

4.0 CONCLUSION **7**

5.0 REFERENCES **8**

APPENDICES

Appendix A Floral and Faunal Species Compendium
Appendix B Site Photographs

ATTACHMENTS

Figure 1 Project Vicinity and Location
Figure 2 Trapping Locations

DRAFT

INTRODUCTION

Philippe Jean Vergne of ENVIRA was contracted by Hernandez Environmental Services to conduct a live-trapping effort for the Stephens' Kangaroo Rat (*Dipodomys stephensi*) (SKR), the Dulzura Pocket Mouse (*Chaetodipus californicus femoralis*), and other small fossorial mammals on the Bonsall High School project site (Assessor's Parcel Number 124-340-34-00) located to the west of Gird Road.

The focused trapping surveys were conducted on the approximate 48.9-acre project site located within the community of Bonsall, within an unincorporated area of northern San Diego County, California. The site consists of disturbed annual grasslands located approximately 0.30-miles north of the intersection of State Route 76 (SR 76) and Gird Road (Figure 1).

Figure 1. Project Site Vicinity and Boundaries

This report describes the existing conditions of the project site, general biological resources observed onsite, and the results of the trapping surveys.

A literature review, and records check were conducted for sensitive resources within the vicinity of the proposed project. In addition to the literature review, a general field survey of the project area was conducted. The field survey provided information on the existing conditions of the site and the potential for sensitive resources to be present. Focused trapping surveys for the SKR were conducted in areas containing potential habitat and suitable soils.

Two sensitive mammal species were identified as potentially present in the vicinity of the project site: Stephens' kangaroo rat (*Dipodomys stephensi*) (SKR) and Dulzura Pocket mouse (*Chaetodipus californicus femoralis*).

Trapping surveys for the SKR and Dulzura pocket mouse were conducted according to U.S. Fish and Wildlife Service (USFWS) protocols. The current protocol calls for five nights of trapping, conducted when the species is active above ground at night and preferably during a new moon phase. One trapping session was conducted from March 2nd through 7th, 2017.

Based on the trapping results, the SKR and Dulzura pocket mouse do not occur on the site.

One sensitive mammal species of special concern, the San Diego Desert woodrat (*Neotoma lepida intermedia*) was captured as part of the trapping effort. Although one individual was captured on site, the area of potential take is limited and isolated on a regional scale, and the impact to this species from project implementation is not significant under CEQA.

1.0 METHODS

A literature review and records check were conducted for sensitive resources within the vicinity of the proposed project. In addition to the literature review, a general field survey of the project area was conducted. The field survey provided information on the existing conditions on the site and the potential for sensitive resources to be present. Focused trapping surveys for the SKR and Dulzura pocket mouse were conducted within areas containing potential habitat and suitable soils.

1.1 LITERATURE REVIEW

A literature review was conducted prior to the trapping effort. This included a review of standard field guides and texts on sensitive and non-sensitive biological resources, as well as the following sources:

- List of sensitive biological resources provided by the California Natural Diversity Data Base (CNDDB);
- Biological resources reports for the project site and adjacent properties; and,
- General texts and other documents identifying potential resources on the site.

All technical information reviewed is included in the references section of this document.

1.2 GENERAL BIOLOGICAL SURVEYS

A reconnaissance level pedestrian survey was conducted on the 50-acre site prior to trapping in order to assess suitable habitat for sensitive small mammal biological resources within the project site boundaries. The field team inventoried and evaluated the condition of the plant communities on site in order to assess the probability of occurrence for SKR, Dulzura pocket mouse, and other sensitive species. Based on the results of the reconnaissance survey, and since

limited potential kangaroo rat and pocket mouse sign was found on site (burrows), a focused trapping survey was performed.

Notes were taken during the surveys of all plant and animal species observed. Observations of animal species included scat, trails, tracks, burrows, nests, calls, and visual observation. In addition, site characteristics such as soils, topography, the condition of the plant communities, and evidence of human use of the site were noted. A list of plant and wildlife species observed within the trapping areas is included (Appendix A).

1.3 FOCUSED SURVEYS

Field surveys and focused trapping for SKR and Dulzura pocket mouse were performed by Mr. Philippe Vergne of ENVIRA. Mr. Vergne holds a U.S. Fish and Wildlife Service permit to trap and handle Stephens' and San Bernardino Kangaroo rats, Pacific Pocket mouse, and to conduct field studies on sensitive small mammals in Southern California (TE-831207-3), a California Department of Fish and Game (CDFG) Memorandum of Understanding for above mentioned species and the Mohave ground squirrel, Los Angeles pocket mouse, Palms Springs pocket mouse, Palm Springs ground squirrel, white-eared pocket mouse, Jacumba pocket mouse, north-western San Diego pocket mouse, and the Dulzura pocket mouse , and a current CDFG scientific collection permit.

Trapping lines of 30 traps, set 5 to 10 meters apart, were set at each trapping area (A through G) (Figure 2). Traps were placed in suitable habitat areas on the project site, concentrating on locating traps in areas containing small-mammal sign and /or suitable soils and vegetation.

Each trap was baited with a mixture of birdseed placed at the back of the traps. The traps were left in place and opened at dusk each night and inspected once during the night and at dawn each morning. All animals were identified and released at the point of capture. Weather conditions at the time of the trapping were also noted.

2.0 EXISTING CONDITION

2.1 WEATHER CONDITIONS

Weather conditions during the trapping surveys consisted of morning temperatures ranging from 62 to 67 degrees Fahrenheit, clear skies, and little or no wind. Weather conditions are summarized in Table 1 below.

Table 1. Weather Conditions

DAY	CLOUD COVER	MAX TEMPERATURE (°F)	WIND (MPH)
1 (PM)	Clear	64	0
2	Clear	66	0
3	Clear	62	0-3
4	Clear	67	0-3
5	Clear	64	0
6	Clear	65	0

2.2 TOPOGRAPHY AND SOILS

The project site consists of gently sloping terrain. Potential SKR and pocket mouse habitat occurs within the more open portions of the grasslands and along the dirt roads.

Soils for the project area are mapped as Bonsall-Fallbrook sandy loams, and Fallbrook-Vista sandy loams (Bowman 1973). The soils on site are suitable for small mammal occupancy.

2.3 SURROUNDING LAND USES

Surrounding land use includes rural residential to the north, a golf course to the west and south, and Gird Road to the east. Disturbances on the site include signs of grazing and dirt access roads.

2.4 PLANT COMMUNITIES

Site vegetation communities include in order of decreasing abundance disturbed annual grasslands, Southern willow Riparian forest, eucalyptus grove, coast live-oak woodland, freshwater marsh, and patches of emergent coastal sage scrub. The disturbed annual grasslands are by far the dominant community.

A list of floral and faunal species observed in the trapping area is given in Appendix A.

2.5 WILDLIFE

Wildlife activity was moderate to high, with most of the wildlife represented by bird species and small fossorial mammals, deer mouse (*Permnyscus maniculatis)* and San Diego desert woodrat (*Neotoma lepida intermedia*, captured during the trapping effort.

One amphibian was observed, the California tree frog (*Pseudacris cadaverina*). Reptiles were observed mainly on the dirt roads.

Avian species were the most common group observed during the surveys. Mammal species observed, other than those trapped, include Botta's Pocket Gopher (*Thomomys bottae*), California Ground Squirrel (*Spermophilus beecheyi*), Audubon's Cottontail (*Sylvilagus aubudonii*), and Coyote (*Canis latrans*).

2.6 SENSITIVE BIOLOGICAL RESOURCES

Two sensitive mammal species were identified as potentially present in the vicinity of the project site: Stephens' kangaroo rat (*Dipodomys stephensi*) (SKR) and Dulzura Pocket mouse (*Chaetodipus californicus femoralis*).

2.6.1 Stephens' Kangaroo Rat

The Stephens' Kangaroo Rat prefers open areas with sparse perennial cover. This species occurs in areas of loose soil where the soil depth is at least 0.5 meter (Price and Endo 1989). SKR will also inhabit disturbed areas such as fallow fields by using the burrows of other rodents, including the Pocket Gopher and the California Ground Squirrel (O'Farrell 1989).

Like all kangaroo rats, SKR is primarily a seed eater, feeding on the seeds of both annual and shrub species. It also feeds on green vegetation and insects when these are available. Being a primarily dry biome species, kangaroo rats obtain nearly all of their water from the food they eat, and can subsist indefinitely on water extracted from dry seeds. They forage in open ground and underneath shrubs. Burrows are dug in loose soil.

SKR presence is documented to the east and north of the proposed project mostly in the areas surrounding the Camp Pendleton Marine Corps Base, Fallbrook Naval Weapons Center, and in the Fallbrook Airpark area. This species was not captured during the trapping survey.

2.6.2 Dulzura Pocket Mouse

The Dulzura pocket mouse occurs in open, loamy sandy areas in the valleys and foothills of southwestern California.

The range of this species extends from Orange County to San Diego County, and includes Riverside and San Bernardino counties. This mouse is a California Species of Concern (CSC) whose historical range has been reduced by urban development and agriculture.

The CSC designation of species is based on a series of publications prepared by the CDFG on declining species of mammals, birds, fishes, and amphibians and reptiles. The documents were intended to focus attention on declining wildlife in California, species that are not currently listed but may merit listing under the California Endangered Species Act (CESA). Some of the species identified in these documents have been subsequently listed, or are provided protection under provisions in the California Endangered Species Act (CEQA). Others have remained on the CSC list, and have not been elevated to a greater status of protection. The reasons are many, including a lack of understanding on the specific numbers of individuals and populations, the habitats occupied by the species and the threats to those habitats.
This species was not captured during the trapping survey.

2.7 TRAP SITE DESCRIPTION

Traps were set within the open disturbed annual grasslands and open scrub areas and at the edge of dirt roads adjacent to suitable areas. Traps were set in areas containing suitable soils, open vegetation cover, and small-mammal sign.

3.0 FOCUSED TRAPPING SURVEY RESULTS

A total of two small mammal species, deer mouse and San Diego desert woodrat, were trapped during the survey period. Table 2 provides summary information on the species trapped per site.

Table 2. Focused Trapping Results

Trap Lines	Number of Traps	Trap Nights	PEMA*	NELE**
A	30	150	15	1
B	30	150	11	
C	30	150	22	
D	30	150	17	
E	30	150	14	
F	30	150	9	
G	30	150	13	
TOTAL	**180**	**900**	**101**	**1**

*PEMA-Deer Mouse (*Permnyscus maniculatis)*

**NELE- San Diego Desert Woodrat (*Neotoma lepida intermedia*)

4.0 CONCLUSION

Based on the trapping results, the SKR and Dulzura pocket mouse do not occur on the site.

One sensitive mammal, the San Diego desert woodrat, was captured as part of the trapping effort. The San Diego desert woodrat is a California CSC. This species inhabits areas with dense vegetation including habitats such as coastal sage scrub and chaparral, and areas where rock crevices are present. Its small stick nests are often encountered in areas of rocky outcrops in sage scrub and arid chaparral and wedged against the base of larger, shielding shrubs. Although one individual was captured on site, the area of potential take is limited and isolated on a regional scale, and the impact to this species from project implementation is not significant under CEQA.

In order to mitigate potential impacts to this species resulting from project activities, a qualified biologist shall conduct a pre-construction survey for San Diego desert woodrats within the proposed limits of disturbance and a 100-foot buffer. Any San Diego desert woodrat found will be passively relocated outside of the project area within adjacent suitable habitat.

5.0 REFERENCES

Burt, W. H. 1986. *A Field Guide to the Mammals in North America North of Mexico*. Houghton Mifflin Company, Boston, Massachusetts.

California Natural Diversity Data Base. 2004. Data Base report on threatened, endangered, rare or otherwise sensitive species and communities in the vicinity of the project site.

Garrett, K. and J. Dunn. 1981. Birds of Southern California. Los Angeles Audubon Society. The Artisan Press, Los Angeles, California.

Grinnell, J. 1933. Review of the Recent Mammal Fauna of California. University of California Publications in Zoology, 40:71-234.

Hall, E.R. 1981. The Mammals of North America, Volumes I and II, John Wiley and Sons, New York, New York.

Hanes, T.L., R.D. Friesen, and K. Keane. 1989. Alluvial Scrub Vegetation in Coastal Southern California. U.S. Department of Agriculture, Forest Service Gen. Tech. Rep. PSW-110.

Hickman, J.C., ed. 1993. The Jepson Manual: Higher Plants of California. University of California Press.

Ingles, L.G. 1965. Mammals of the Pacific States. Stanford University Press, Stanford, California.

Laudenslayer, Jr., W.F., W.E. Grenfell, Jr. and D.C. Zeiner. 1991. A Check-list of the Amphibians, Reptiles, Birds and Mammals of California. California Fish and Game, 77:109-141.

Munz, P.A. 1974. A Flora of Southern California. University of California Press, Berkeley, California.

O'Farrell, M. J., and C. Uptain. 1989. Assessment of Population and Habitat Status of the Stephens' Kangaroo Rat (*Dipodomys stephensi*). The Resources Agency, Sacramento, California.

Price, M.V. and P.R. Endo. 1989. Estimating the Distribution and Abundance of a Cryptic Species, Dipodomys stephensi (Rodentia: Heteromydidae) and Implications for Management. Conservation Biology, 3:293 - 301.

Stebbins, R.C. 1985. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company, Boston.

Vergne, P.J. 2008. Results of a SKR Presence/Absence Trapping survey at the Ramona Airpark. Prepared for San Diego County Regional Airpark Authority.

Vergne, P.J. 2010. Results of a SKR Presence/Absence Trapping survey for the Kiwano Proposed Project. Prepared for Helix Environmental Planning.

Vergne, P.J. 2014. Results of a SKR Presence/Absence Trapping survey for the Kiwano Proposed Project. Prepared for Helix Environmental Planning.

Williams, D.F. 1986. Mammalian Species of Special Concern in California. Wildlife Management Division Administrative Report 86-1. Prepared for The Resources Agency, California Department of Fish and Game.

APPENDIX A. FLORAL AND FAUNAL COMPENDIUM TRAPPING AREAS

ANGIOSPERMAE: DICOTYLEDONES DICOT FLOWERING PLANTS

Anacardiaceae	**Sumac family**
Rhus ovata	Sugar bush
**Schinus molle*	Peruvian pepper tree
Apiaceae	**Carrot family**
**Foeniculum vulgare*	Sweet fennel
Lomatium utriculatum	Cow-parsnip
Asteraceae	**Sunflower family**
Ambrosia psilostachya	Western ragweed
Artemisia californica	California sagebrush
Baccharis salicifolia	Mulefat
Chrysothamnus nauseosus	Rabbit brush
Helianthus annuus	Annual sunflower
Boraginaceae	**Borage family**
Cryptantha intermedia	Popcorn flower
Brassicaceae	**Mustard family**
**Brassica nigra*	Black mustard
**Hirschfeldia incana*	Short-podded mustard
**Lepidium perfoliatum*	Weedy peppergrass
Cactaceae	**Cactus family**
Opuntia sp.	Prickly pear
Caprifoliaceae	**Honeysuckle family**
Sambucus mexicana	Blue elderberry
Euphorbiaceae	**Spurge family**
Euphorbia nutans	Spurge
Fabaceae	**Pea family**
Astragalus pomonensis	Locoweed
Lotus scoparius	Deer weed
Geraniaceae	**Geranium family**
**Erodium cicutarium*	Red-stemmed filaree

*denotes non-native species

Polygonaceae	**Buckwheat family**

Eriogonum fasciculatum	California buckwheat
Rosaceae	**Rose family**
Adenostoma fasciculatum	Chamise
Salicaceae	**Willow family**
Salix lasiolepis	Arroyo willow

ANGIOSPERMAE: MONOCOTYLEDONAE MONOCOT FLOWERING PLANTS

Poaceae	**Grass family**
**Avena barbata*	Slender wild oats
**Avena sativa*	Cultivated oats
**Bromus diandrus*	Ripgut brome
**Bromus madritensis*	Red brome
**Hordeum murinum*	Wild barley
**Schismus barbatus*	Mediterranean grass

*denotes non-native species

FAUNA

REPTILIA	**REPTILES**
Iguanidae	**Iguanas and their allies**
Sceloporus occidentalis	Western fence lizard
Uta stansburiana	Side-blotched lizard
Teiidae	**Whiptails and their allies**
Cnemidophorus tigris multiscutatus	Coastal whiptail
Colubridae	**Colubrids**
Pituophis melanoleucucs	Gopher snake
AVES	**BIRDS**
Charadriidae	**Plovers and relatives**
Charadrius vociferus	Killdeer
Cathartidae	**Vultures**
Cathartes aura	Turkey vulture
Accipitridae	**Kites, hawks and eagles**
Buteo lineatus	Red-shouldered hawk
Buteo jamaicensis	Red-tailed hawk
Falconidae	**Caracaras and falcons**
Falco sparverius	American kestrel
Phasianidae	**Quails and pheasants**
Callipepla californica	California quail
Columbidae	**Pigeons and doves**
Zenaida macroura	Mourning dove
Tytonidae	**Barn owl**
Tyto alba	Barn owl
Corvidae	**Crows and ravens**
Corvus brachyrhynchos	American crow
Sturnidae	**Starlings**
Sturnus vulgaris	European starling

Fringillidae	**Finches**
Carpodacus neomexicanus	House finch
MAMMALIA	**MAMMALS**
Leporidae	**Rabbits and hares**
Sylvilagus audubonii	Audubon's cottontail
Sciuridae	**Squirrels, chipmunks and marmots**
Spermophilus beecheyi	California ground squirrel
Geomyidae	**Pocket gophers**
Thomomys bottae	Botta's pocket gopher
Cricetidae	**Cricetine mice and rats**
Peromyscus maniculatus	Deer mouse
Neotoma lepida	Desert woodrat
Canidae	**Foxes, wolves and relatives**
Canis latrans	Coyote
Procyonidae	**Raccoons and relatives**
Procyon lotor	Raccoon

SITE PHOTOGRAPHS

North West corner of Site

Center portion of Site

SITE PHOTOGRAPHS

Looking South Across Site

Appendix G
Oak Tree Survey

ESA

March 23, 2017

Hernandez Environmental Services

Mr. David Medcalf
Bonsall Unified School District
31555 Old River Road
Bonsall, California 92003

RE: Oak Tree Survey for Bonsall High School (Assessor's Parcel Number 124-340-34-00)

Dear Mr. Medcalf:

At your request, Hernandez Environmental Services has conducted an oak tree survey for the approximate 48-acre project site located within the community of Bonsall, within an unincorporated area of northern San Diego County, California. The project site is located west of the intersection of Gird Road and Live Oak Creek Circle and north of State Route 76 within the community of Bonsall (Figures 1 and 2). Specifically, the project site is located within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Bonsall* Quadrangle. The approximate center of the project site is located at 33°19'19.85"N, 117°11'44.22"W.

The project would construct a new high school for grades 9-12 with a maximum enrollment of 1,500 students and a maximum of 60 staff (teachers, aides, administrators, and other school personnel). The project would provide approximately 150,500 square feet (sf) building floor area and approximately 21.4 acres of recreational fields, parking, and landscape/hardscape (Figure 3). The proposed buildings include permanent classrooms, administrative offices, media centers, and gymnasium. The project would also include recreational fields and facilities for community use after school hours, weekends, and holidays.

All proposed project structures would be developed to a maximum height of 34 feet. Proposed project building elevations would vary up to 34 feet in height, and the final building elevations would be subject to approval of BUSD Board of Trustees as part of the entitlement process.

A passenger pick-up and drop-off area with seat walls (short walls that can function as seating) would be located along the west side of the campus, along Gird Road. The project would include a lunch shelter with an adjacent event space (assembly plaza), mounded lawn with tiered seat walls at the event plaza. The site would include an outdoor collaboration courtyard, fitness pavilion, and arts courtyard.

The project would include a football field and running track, soccer field, natural turf playing fields, and a fitness pavilion with asphalt basketball courts.

The buildings would be of modern design and include contemporary features such as corrugated metal siding, fiber cement plank siding, fiber cement panels, aluminum storefront and glazing,

corrugated metal roofing, and fiber cement plank screens. Exterior colors would be varied neutral colors of tans, browns, and light blue.

PROJECT COMPONENTS

Building/Facility	Number of Floors	Ground Area (SF/Acres)	Total Building Area (SF)
Administration/Student Support	1	5,500 sf	5,500 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building & Learning Commons	2	16,200 sf	32,400 sf
Classroom Building – Art, Music, Drama, Food Service	1	17,800 sf	17,800 sf
Gymnasium/Lockers/Support	1	30,000 sf	30,000 sf
Total – Buildings		**3.2 acres/101,900 sf**	**150,500 sf**
Recreational Fields/Track/Field Building	-	3.4 acres	-
Landscape/Hardscape/Sports Courts	-	12.2 acres	-
Parking Lot/Bus Parking/Driveway	-	5.8 acres	-
Total Improvements - Non-Buildings	**-**	**21.4 acres**	**-**
Golf Course Encroachment		1.9 acres	
Total – Disturbed Area	**-**	**24.6 acres***	**-**
Total – Undisturbed Open Space Area	**-**	**22.4 acres***	
Total – Project Site	**-**	**48.9 acres****	
Offsite Improvements – Gird Road	**-**	**0.1 acres**	**-**

* Does not include existing golf course encroachment area.
** Does not include Gird Road easement area.
SOURCE: BakerNowicki design studio, 2017

The project site would be used on occasional weekends and weekday during non-school hours for sporting events, including: soccer, basketball, volleyball, and track and field. Stadium seating is not proposed for the athletic fields and athletic field light lighting is not proposed. The project site would also be used for occasional large public events such as graduation ceremonies. These large events would not occur more than a few times per school year.

Regional access to the site would be provided by I-15 via SR-76. Project site access would be provided via a new driveway on Gird Road with an onsite turn-around loop for pick-up/dropoff. The northbound left turn pocket in Gird Road would be 150 feet long as part of the project. The access driveway would be stop-sign controlled (i.e. drivers exiting the school onto Gird Road would encounter the stop sign). Acceleration and deceleration transition areas are proposed north and south of the access driveway on the west side of Gird Road. Sidewalks are not proposed along Gird Road. No other improvements to Gird Road are planned as part of the proposed project. Minor improvements to Gird Road will be required to add a north bound left turn lane pocket and southbound deceleration driveway transition. These improvements will require minor shoulder grading and 6,600 square feet of new pavement located with the county right of

way. An encroachment permit is required from San Diego County Public Works to complete work within the right of way.

A driveway extending from the parking lot to the food service building would provide fire/emergency access in addition to food delivery service access. There are bicycle lanes on Gird Road; however, no other bike or pedestrian access would be provided to the project site.

The project includes 60 stalls for staff/visitor parking and 139 stalls for student parking. A parking area for up to 12 school buses would be included on the project site contiguous to staff and student parking areas. Some students within the District would be bused to the high school, including students from the Pala Reservation and eastern Oceanside.

Construction of the project would be completed in two phases. Phase 1 and Phase 2 grading and site preparation and undergrounding of utilities is expected to commence in late 2019 and would last approximately three months. Building construction and development of the driveway, parking lot, landscaping, and lighting would last approximately 13 months. Phase 2 building construction and landscaping would begin in spring 2023. Phase 1 would be operational by summer 2021 and Phase 2 would be operational by summer 2025.

Project grading would be balanced onsite and would not require import or export material to create finished pads for building construction. The design and construction of the proposed project has been developed to adhere to State of California Department of Education design requirements and San Diego County Code (Gird Road improvements).

Project construction personnel and equipment onsite would vary depending on the construction task, and would include a range of construction trades and equipment, including grading, drainage, underground utilities, paving, building construction, lighting, landscaping and fencing. An average of 50 construction personnel would be expected to be onsite at any given time during the construction phase.

EXISTING SITE CONDITIONS

The project area is situated within an unincorporated area of north San Diego County between the community of Fallbrook to the north, the City of Oceanside to the west, the community of Valley Center to the west, and the North County Metropolitan Subregion and City of Vista to the south. Overall access to the area is provided by State Route 76. Land uses surrounding the project site include residential development to the north, a golf course to the south and west, and vacant lands and residential development to the east.

A total of six habitat types occur on the project site, including 40.7 acres of non-native grassland, 2.84 acres of red willow dominant habitat, 2.78 acres of eucalyptus woodland, 1.2 acres if coast live oak woodland, 0.44 acre of ornamental vegetation, and 0.04 acre of mulefat dominant vegetation. The project site contains three unnamed tributaries to the San Luis Rey River. These on-site ephemeral drainages flow southeast through the project site to an unnamed tributary to the San Luis Rey River. The

project site is gently rolling, with an elevation range of approximately 230 to 300 feet above mean sea level (MSL).

METHODOLOGY

This oak tree survey report is based on information compiled through field reconnaissance, previous documentation, and appropriate reference materials. Such reference materials include aerial photography, a USGS topographic map, and literature search. The oak tree survey was conducted on February 19, 2017. The oak tree survey consisted of recording location data, measuring the diameter at breast height (DBH) at approximately 54-inches from ground level, observing canopy width, and measuring the approximate height of each tree. The data recorded during the site evaluation is presented in Appendix A, *Oak Tree Survey Data*.

In order to record the approximate location of each tree or clump of trees on the site, a Garmin Global Positioning System Model GPSMaps 60 Csx was utilized in the field. A Geographic Information System (GIS), Global Mapper, was used to concisely locate each oak tree within the project site boundaries and impacts to oak trees resulting from implementation of the proposed project.

RESULTS

A total of 95 oak trees were counted, recorded, and assessed (Figure 4). All 95 oak trees located on the project site were identified as Canyon live oak trees (*quercus chrysolepis*). Onsite trees range from 8 to 39 feet in height; canopy width ranged from 5 to 56 feet; and trunk diameter ranged from 1.91 to 36.94 inches. All oak trees within the project site were found to be on average in good condition, physiologically, structurally, and aesthetically.

Based upon current site plans, the proposed development of the site into the Bonsall High School will result in impacts to two onsite oak trees located on the southeast portion of the site along Gird Road where access will be provided.

CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: March 23, 2017

Signed: _____

Shawn Gatchel-Hernandez

Enclosures:

Figure 1: Location Map
Figure 2: Vicinity Map
Figure 3: Project Plan Map
Figure 4: Oak Tree Location Map
Appendix A: Oak Tree Survey Data

FIGURES

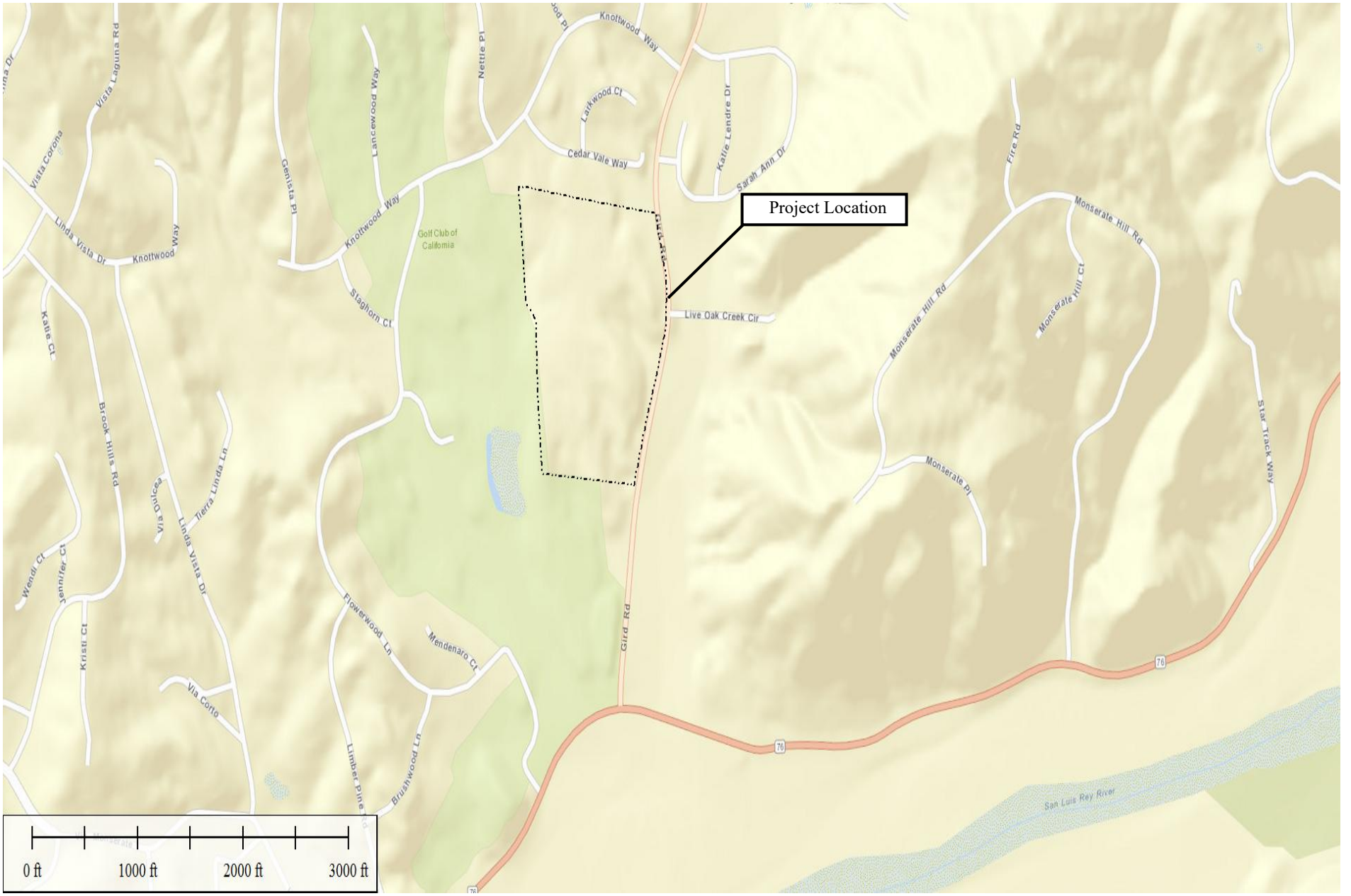


Figure 1

Location Map
Bonsall School District
Bonsall, San Diego County, CA

Legend

Project Location

N

Hernandez Environmental Services

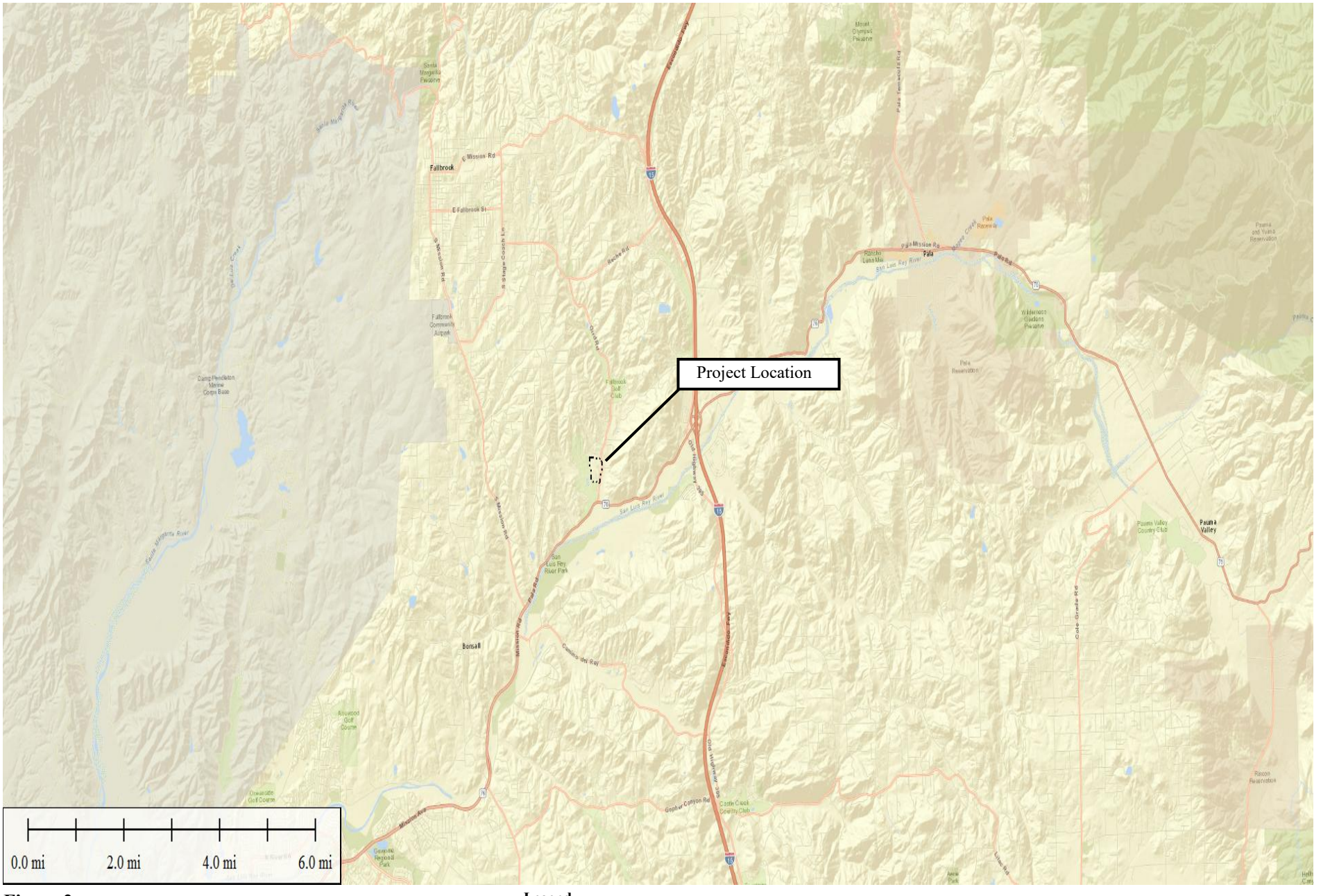


Figure 2

Vicinity Map
Bonsall School District
Bonsall, San Diego County, CA

Legend

Project Location

N

Hernandez Environmental Services

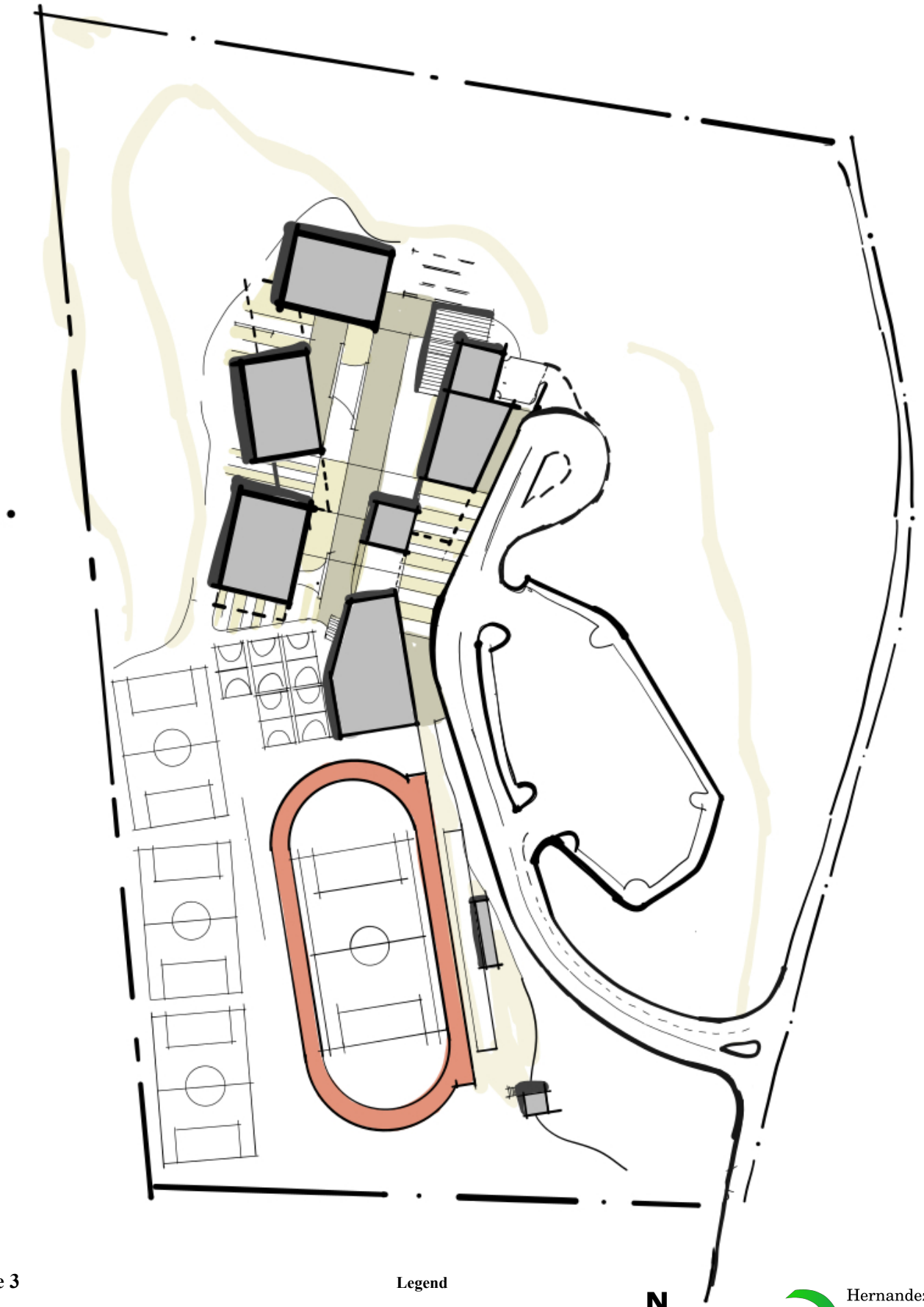


Figure 3

Project Plan Map
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

N

Hernandez Environmental Services

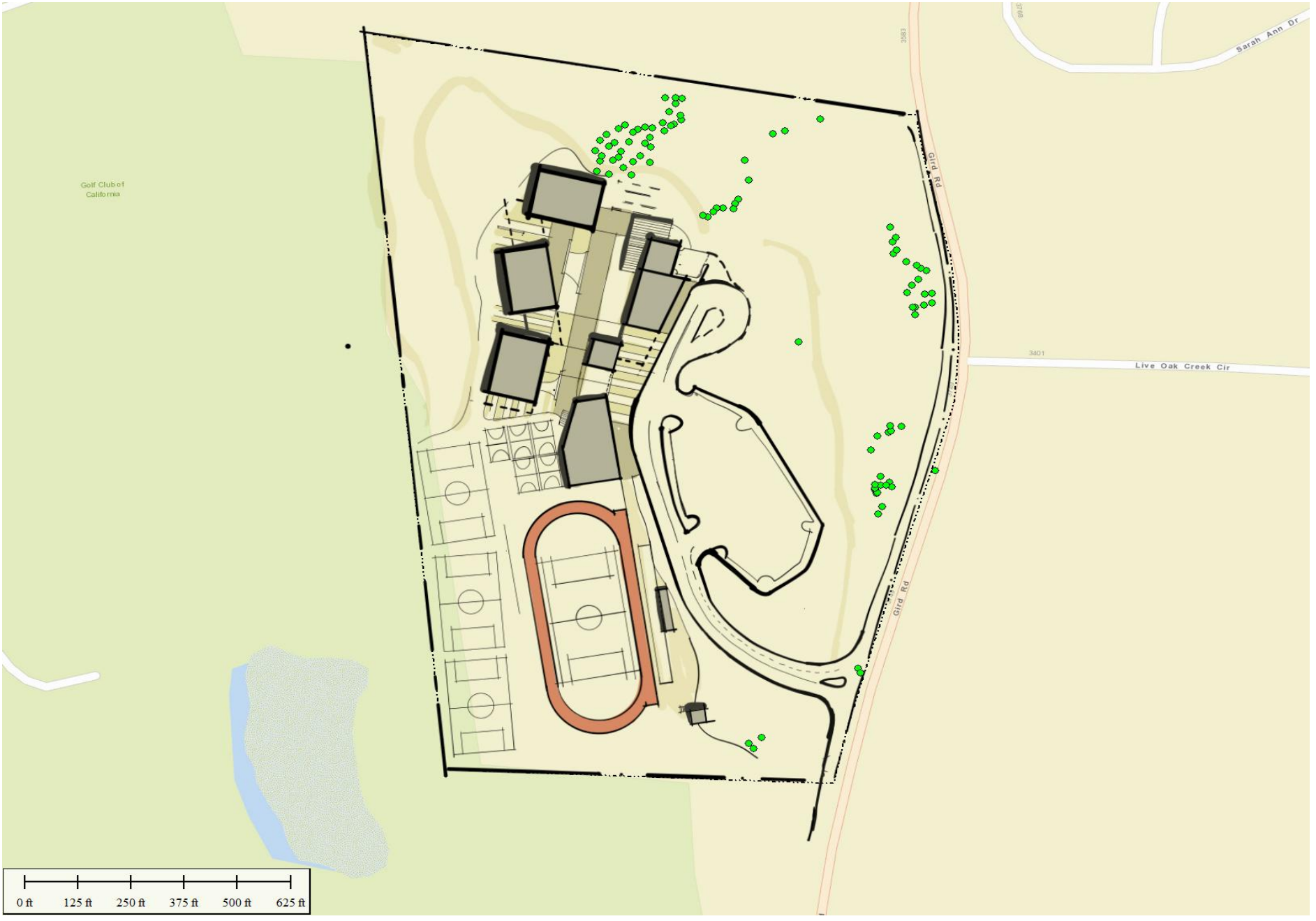


Figure 4

Oak Tree Locations Map
Bonsall School District
Bonsall, San Diego County, CA

Legend

Project Location

Oak Trees

N

Hernandez Environmental Services

APPENDIX A

Tree Waypoint	Latitude	Longitude	Tree Species	Height (feet)	Trunk Circumference	Trunk Diameter (inches)	Canopy Width (feet)
236	33°19'21.70"N	117°11'34.13"W	Coastal Live Oak	20	108	34.39	40
237	33°19'21.70"N	117°11'34.60"W	Coastal Live Oak	20	58	18.47	22
238	33°19'21.90"N	117°11'34.58"W	Coastal Live Oak	25	87	27.71	30
239	33°19'21.89"N	117°11'34.65"W	Coastal Live Oak	20	44	14.01	17
240	33°19'21.93"N	117°11'34.35"W	Coastal Live Oak	19	48	15.29	20
241	33°19'21.99"N	117°11'34.12"W	Coastal Live Oak	21	29	9.24	23
242	33°19'22.22"N	117°11'34.11"W	Coastal Live Oak	32	60	19.11	34
243	33°19'22.22"N	117°11'34.30"W	Coastal Live Oak	25	57	18.15	23
244	33°19'22.28"N	117°11'34.79"W	Coastal Live Oak	29	63	20.06	32
245	33°19'22.45"N	117°11'34.65"W	Coastal Live Oak	30	57	18.15	33
246	33°19'22.60"N	117°11'34.49"W	Coastal Live Oak	19	43	13.69	23
247	33°19'22.82"N	117°11'34.25"W	Coastal Live Oak	30	72	22.93	37
248	33°19'22.88"N	117°11'34.39"W	Coastal Live Oak	33	65	20.70	32
249	33°19'22.95"N	117°11'34.50"W	Coastal Live Oak	26	57	18.15	32
250	33°19'23.06"N	117°11'34.80"W	Coastal Live Oak	25	72	22.93	28
251	33°19'23.26"N	117°11'35.14"W	Coastal Live Oak	30	83	26.43	33
252	33°19'23.36"N	117°11'35.05"W	Coastal Live Oak	23	44	14.01	21
253	33°19'23.56"N	117°11'35.16"W	Coastal Live Oak	25	50	15.92	22
254	33°19'23.68"N	117°11'35.07"W	Coastal Live Oak	23	33	10.51	19
255	33°19'23.94"N	117°11'35.20"W	Coastal Live Oak	18	81	25.80	22
256	33°19'26.73"N	117°11'37.03"W	Coastal Live Oak	21	84	26.75	38
257	33°19'26.44"N	117°11'38.03"W	Coastal Live Oak	17	46	14.65	14
258	33°19'26.38"N	117°11'38.35"W	Coastal Live Oak	19	26	8.28	13
259	33°19'25.73"N	117°11'39.16"W	Coastal Live Oak	10	12	3.82	10
260	33°19'25.22"N	117°11'39.06"W	Coastal Live Oak	30	116	36.94	56
261	33°19'24.74"N	117°11'39.38"W	Coastal Live Oak	15	28	8.92	18
262	33°19'24.64"N	117°11'39.46"W	Coastal Live Oak	14	20	6.37	10
263	33°19'24.52"N	117°11'39.52"W	Coastal Live Oak	14	21	6.69	10
264	33°19'24.54"N	117°11'39.81"W	Coastal Live Oak	15	24	7.64	9
265	33°19'24.54"N	117°11'39.98"W	Coastal Live Oak	12	32	10.19	12
266	33°19'24.46"N	117°11'40.08"W	Coastal Live Oak	12	20	6.37	11
267	33°19'24.32"N	117°11'40.24"W	Coastal Live Oak	11	15	4.78	9
268	33°19'24.37"N	117°11'40.37"W	Coastal Live Oak	13	22	7.01	10
269	33°19'29.69"N	117°11'41.07"W	Coastal Live Oak	21	78	24.84	32
270	33°19'26.81"N	117°11'40.87"W	Coastal Live Oak	9	11	3.50	8
271	33°19'26.92"N	117°11'40.89"W	Coastal Live Oak	8	8	2.55	7
272	33°19'27.22"N	117°11'41.01"W	Coastal Live Oak	14	20	6.37	15
273	33°19'27.37"N	117°11'41.01"W	Coastal Live Oak	17	25	7.96	19
274	33°19'27.34"N	117°11'40.84"W	Coastal Live Oak	11	11	3.50	12
275	33°19'27.38"N	117°11'41.29"W	Coastal Live Oak	17	18	5.73	12
276	33°19'27.01"N	117°11'41.19"W	Coastal Live Oak	25	24	7.64	21
277	33°19'26.66"N	117°11'41.18"W	Coastal Live Oak	12	19	6.05	18
278	33°19'26.54"N	117°11'41.34"W	Coastal Live Oak	9	8	2.55	5
279	33°19'26.74"N	117°11'41.40"W	Coastal Live Oak	20	45	14.33	25
280	33°19'26.62"N	117°11'41.67"W	Coastal Live Oak	20	42	13.38	20
281	33°19'26.37"N	117°11'41.76"W	Coastal Live Oak	26	48	15.29	30
282	33°19'26.13"N	117°11'41.73"W	Coastal Live Oak	39	98	31.21	40
283	33°19'25.74"N	117°11'41.79"W	Coastal Live Oak	21	82	26.11	21
284	33°19'25.44"N	117°11'42.29"W	Coastal Live Oak	27	64	20.38	26

Tree Waypoint	Latitude	Longitude	Tree Species	Height (feet)	Trunk Circumference	Trunk Diameter (inches)	Canopy Width (feet)
285	33°19'25.62"N	117°11'42.50"W	Coastal Live Oak	25	59	18.79	30
286	33°19'25.77"N	117°11'42.23"W	Coastal Live Oak	30	50	15.92	30
287	33°19'25.92"N	117°11'42.04"W	Coastal Live Oak	36	72	22.93	36
288	33°19'26.23"N	117°11'41.89"W	Coastal Live Oak	24	51	16.24	23
289	33°19'26.65"N	117°11'41.88"W	Coastal Live Oak	29	56	17.83	25
290	33°19'26.60"N	117°11'42.07"W	Coastal Live Oak	35	66	21.02	26
291	33°19'26.52"N	117°11'42.21"W	Coastal Live Oak	25	34	10.83	15
292	33°19'26.27"N	117°11'42.33"W	Coastal Live Oak	28	59	18.79	40
293	33°19'26.04"N	117°11'42.57"W	Coastal Live Oak	24	44	14.01	19
294	33°19'25.90"N	117°11'42.65"W	Coastal Live Oak	26	45	14.33	22
295	33°19'25.83"N	117°11'42.79"W	Coastal Live Oak	35	71	22.61	39
296	33°19'25.48"N	117°11'42.92"W	Coastal Live Oak	26	67	21.34	29
297	33°19'25.57"N	117°11'43.24"W	Coastal Live Oak	14	51	16.24	25
298	33°19'25.82"N	117°11'43.15"W	Coastal Live Oak	30	79	25.16	43
299	33°19'25.94"N	117°11'43.10"W	Coastal Live Oak	30	58	18.47	29
300	33°19'26.18"N	117°11'42.89"W	Coastal Live Oak	28	45	14.33	24
301	33°19'26.28"N	117°11'42.73"W	Coastal Live Oak	30	82	26.11	38
302	33°19'26.71"N	117°11'42.43"W	Coastal Live Oak	30	46	14.65	23
303	33°19'26.63"N	117°11'42.60"W	Coastal Live Oak	32	48	15.29	26
304	33°19'26.48"N	117°11'42.95"W	Coastal Live Oak	30	59	18.79	35
305	33°19'26.33"N	117°11'43.12"W	Coastal Live Oak	28	57	18.15	28
306	33°19'26.08"N	117°11'43.27"W	Coastal Live Oak	27	63	20.06	37
307	33°19'10.95"N	117°11'39.58"W	Coastal Live Oak	15	18	5.73	12
308	33°19'10.82"N	117°11'39.44"W	Coastal Live Oak	14	18	5.73	12
309	33°19'11.09"N	117°11'39.22"W	Coastal Live Oak	14	18	5.73	12
310	33°19'12.77"N	117°11'36.48"W	Coastal Live Oak	16	24	7.64	16
311	33°19'12.67"N	117°11'36.42"W	Coastal Live Oak	15	18	5.73	16
312	33°19'16.68"N	117°11'35.80"W	Coastal Live Oak	13	12	3.82	11
313	33°19'16.87"N	117°11'35.67"W	Coastal Live Oak	14	18	5.73	7
314	33°19'17.47"N	117°11'35.45"W	Coastal Live Oak	14	12	3.82	7
315	33°19'17.39"N	117°11'35.71"W	Coastal Live Oak	14	12	3.82	5
316	33°19'17.29"N	117°11'35.86"W	Coastal Live Oak	30	43	13.69	14
317	33°19'17.19"N	117°11'35.83"W	Coastal Live Oak	30	36	11.46	14
318	33°19'17.21"N	117°11'35.79"W	Coastal Live Oak	30	36	11.46	14
319	33°19'17.34"N	117°11'35.87"W	Coastal Live Oak	30	35	11.15	14
320	33°19'17.42"N	117°11'35.86"W	Coastal Live Oak	30	34	10.83	14
321	33°19'17.36"N	117°11'35.39"W	Coastal Live Oak	25	18	5.73	14
322	33°19'17.40"N	117°11'35.54"W	Coastal Live Oak	13	6	1.91	5
323	33°19'17.63"N	117°11'35.70"W	Coastal Live Oak	30	38	12.10	25
324	33°19'18.31"N	117°11'35.93"W	Coastal Live Oak	16	18	5.73	14
325	33°19'18.66"N	117°11'35.74"W	Coastal Live Oak	13	12	3.82	10
326	33°19'18.74"N	117°11'35.44"W	Coastal Live Oak	30	30	9.55	25
327	33°19'18.77"N	117°11'35.36"W	Coastal Live Oak	30	30	9.55	25
328	33°19'18.90"N	117°11'35.39"W	Coastal Live Oak	30	30	9.55	25
329	33°19'18.88"N	117°11'35.08"W	Coastal Live Oak	10	6	1.91	5
330	33°19'17.73"N	117°11'34.18"W	Coastal Live Oak	25	30	9.55	15

Appendix H
Stephen's Kangaroo Rat Survey

ESA

ENVIRA

Aquaculture Fisheries Environmental

P.O. Box 2612, Ramona, California, USA 92065

Phone 619-885-0236 E-mail PHVERGNE@AOL.COM

Stephen's Kangaroo Rat and Pocket Mouse Phase One Assessment Bonsall High School

Executive Summary

As requested by Hernandez Environmental Services, a site Phase One biological evaluation for Stephens' kangaroo rat (*Dipodomys stephensi*) (SKR) and Dulzura Pocket mouse (*Chaetodipus californicus femoralis*) was conducted on the Bonsall High School project site (Assessor's Parcel Number 124-340-34-00) located to the west of Gird Road.

Limited sign (burrows) attributable to kangaroo rats and potential pocket mouse sized burrows were observed within the project footprint.

A focused trapping survey would have to be conducted in order to determine presence/absence for the SKR and pocket mouse.

Project Site Map

Philippe Vergne (USFWS TE0680072-3, CDFG MOU) of ENVIRA performed the phase one visual assessment and habitat evaluation for the SKR and pocket mouse (burrows, scat, sign) within the proposed project area boundaries.

A data review, including California Department of Fish and Game CNDDB search, was conducted to provide information on plant and wildlife species known occurrences within the vicinity. ENVIRA also reviewed other available technical information on the biological resources of the site.

The survey was performed on March 2, 2017.

Data Review

A literature review was conducted prior to conducting the survey. This included a review of standard field guides and texts on sensitive and non-sensitive biological resources, as well as the following sources:

- List of sensitive biological resources provided by the California Natural Diversity Data Base (CNDDB) (2008 Base requested in 2009);
- Biological resources reports for the project site and adjacent properties; and,
- General texts and other documents identifying potential resources on the site.

The existing site conditions were recorded, paying specific attention to habitats that may potentially contain the targeted species.

Field Surveys

The property was surveyed using standard biological assessment survey techniques. The survey consisted of a complete walkover of the footprint area, and included an evaluation of the habitats on the property and in the surrounding area.

The field survey focused on sensitive biological resources, and included observations of potential habitat for sensitive species. Sign surveyed for included nests, tracks, scat, burrows, skeletal remains, and live animals. During the survey, notes were made on the plant and animal species observed, the surface characteristics and topography of the project area, and the suitability of the habitat for the targeted species.

Results

Weather conditions during the survey consisted of clear skies, temperatures in the high seventies (degrees Fahrenheit), and winds of less than 3 miles per hour.

The proposed project site is located to the west and adjacent to Gird Road. The project is bordered on the south and west by a Golf Course, on the north by rural housing, and on the east by Gird Road.

The dominant habitat on the project site is disturbed annual grassland. There are also limited areas of oak woodland, a eucalyptus grove, and riparian woodland and wetlands on the property.

Disturbed Annual Grasslands on Site

Plant species observed onsite within the potential areas for SKR and pocket mouse occupancy included disturbed annual grasslands and ruderal vegetation with a mix of weedy forbs dominated by filaree, and brome grasses.

Wildlife activity was low, with most of the wildlife represented by bird species. Mammal species observed were limited to pocket gopher burrows, burrows attributable to deer mice (*Peromyscus maniculatus*), and potential burrows for kangaroo rats and pocket mice.

Stephens' Kangaroo Rat

The SKR prefers open areas with sparse perennial cover. This species occurs in areas of loose soil where the soil depth is at least 0.5 meter (Price and Endo 1989). SKR will also inhabit disturbed areas such as fallow fields by using the burrows of other rodents, including the Pocket Gopher and the California Ground Squirrel (O'Farrell 1989).

Like all kangaroo rats, SKR is primarily a seed eater, feeding on the seeds of both annual and shrub species. It also feeds on green vegetation and insects when these are available. Being a primarily dry biome species, kangaroo rats obtain nearly all their water from the food they eat, and can subsist indefinitely on water extracted from dry seeds. They forage in open ground and beneath shrubs. Burrows are dug in loose soil.

Potential burrows for SKR were observed within the project footprint.

Pocket Mouse

The Dulzura pocket mouse occurs in open, loamy sandy areas in the valleys and foothills of southwestern California.

The range of this species extends from Orange County to San Diego County, and includes Riverside and San Bernardino counties. This mouse is a California Species of Concern (CSC) whose historical range has been reduced by urban development and agriculture.

The CSC designation of species is based on a series of publications prepared by the CDFG on declining species of mammals, birds, fishes, and amphibians and reptiles. The documents were intended to focus attention on declining wildlife in California, species that are not currently listed but may merit listing under the California Endangered Species Act (CESA). Some of the species identified in these documents have been subsequently listed, or are provided protection under provisions in the California Endangered Species Act (CEQA). Others have remained on the CSC list, and have not been elevated to a greater status of protection. The reasons are many, including a lack of understanding on the specific numbers of individuals and populations, the habitats occupied by the species and the threats to those habitats.

Potential burrows for pocket mouse size animals were observed within the project footprint.

Discussion

Limited sign (burrows) attributable to kangaroo rats and potential pocket mouse sized burrows were observed within the project footprint.

A focused trapping survey would have to be conducted in order to determine presence/absence for the SKR and pocket mice.

6.0 References

Atwood, J.L. 1990. *Status Review of the California Gnatcatcher (Polioptila californica).* Unpublished technical report, Manomet Bird Observatory, Manomet, MA. 79 pp.

Bleich, V.C. 1977. *Dipodomys stephensi*. Mammalian Species No. 73, pp. 1-3.

Burt, W.H. 1986. *A Field Guide to the Mammals in North American North of Mexico.* Houghton Mifflin Company, Boston, Massachusetts.

California Department of Fish and Game (CDFG). 2004. *Special Animals*. The Resources Agency, Department of Fish and Game, Sacramento, California.

CNDDB. 2008. California Department of fish and Game

Garrett, K. and J. Dunn. 1981. *Birds of Southern California*. Los Angeles Audubon Society. The Artisan Press, Los Angeles, California.

Garth, J.S. and J.W. Tilden. 1986. *California Butterflies*. University of California Press, Berkeley, Los Angeles, London.

Grenfell, W.E., M.D. Parisi, and D. McGriff. 2003. "A Check-list of the Amphibians, Reptiles, Birds and Mammals of California". California Wildlife Habitat Relationship System, California Department of Fish and Game, Sacramento, California.

Grinnell, J. 1933. *Review of the Recent Mammal Fauna of California*. University of California Publications in Zoology. 40: 71-234.

Hall, E.R. 1981. *The Mammals of North America, Volumes I and II*. John Wiley and Sons, New York, New York.

Hickman, J.C., ed. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press.

Ingles, L.G. 1965. *Mammals of the Pacific States*. Stanford University Press, Stanford, California.

Laudenslayer, Jr., W.F., W.E. Grenfell, Jr., and D.C. Zeiner. 1991. *A Check-list of the Amphibians, Reptiles, Birds and Mammals of California. California Fish and Game* 77:109-141.

O'Farrell, M.J. and C. Uptain. 1989. *Assessment of Population and Habitat Status of the Stephen's kangaroo rat (Dipodomys stephensi).* The Resources Agency, Sacramento, California.

Price, M.V. and P.R. Endo. 1989. *Estimating the Distribution and Abundance of a Cryptic Species, Dipodomys stephensi (Rodentia: Heteromyidae) and Implications for Management.* Conservation Biology 3: 293-301.

Remsen, Jr., J.V. 1978. *Bird Species of Special Concern in California. Non-game Wildlife Investigations. Wildlife Management Branch Administrative Report No 78-1*. Report prepared for the California Department of Fish and Game.

Stebbins, R.C. 1985. *A Field Guide to Western Reptiles and Amphibians*. Houghton Mifflin Company, Boston.

Thomas, J.R. 1975. *Distribution, Population Densities and Home Range Requirements of the Stephen's Kangaroo Rat (Dipodomys stephensi)*. Master's Thesis, California State Polytechnic University, Pomona, California.

Tibor, D.P., ed. 2001. *Inventory of Rare and Endangered Vascular Plants of California*. California Native Plant Society, Spec. Pub. No. 1. 6th edition. Berkeley, California.

U. S. Fish and Wildlife Service (USFWS). 1996. *Review of plant and animal taxa for listing as endangered or threatened species; notice of review*. Federal Register Vol. 61, No. 40.

Williams, D.F. 1986. *Mammalian Species of Special Concern in California*. Wildlife Management Division Administrative Report 86-1. Prepared for The Resources Agency, California Department of Fish and Game.

Appendix I
Burrowing Owl Survey

ESA

Hernandez Environmental Services

Memorandum

Date: April 27, 2017

To: Mr. David Medcalf, Bonsall Unified School District

From: Juan J. Hernandez, Principal Biologist

Subject: Burrowing Owl Survey Report for the proposed Bonsall High School (Assessor's Parcel Numbers 124-340-34-00) located in San Diego County, California.

This memorandum provides the methods and results of focused burrowing owl (*Athene cunicularia*) (BUOW) surveys conducted for the proposed Bonsall High School. The proposed project site consists of Assessor's Parcel Number (APN) 124-340-34-00 located within the community of Bonsall in unincorporated San Diego County, California. The project site is located west of the intersection of Gird Road and Live Oak Creek Circle and north of State Route 76 (Figures 1 and 2).

The project would construct a new high school for grades 9-12 with a maximum enrollment of 1,500 students and a maximum of 60 staff (teachers, aides, administrators, and other school personnel). The project would provide approximately 150,500 square feet (sf) building floor area and approximately 21.4 acres of recreational fields, parking, and landscape/hardscape (Figure 3). The proposed buildings include permanent classrooms, administrative offices, media centers, and gymnasium. The project would also include recreational fields and facilities for community use after school hours, weekends, and holidays.

All proposed project structures would be developed to a maximum height of 34 feet. Proposed project building elevations would vary up to 34 feet in height, and the final building elevations would be subject to approval of BUSD Board of Trustees as part of the entitlement process.

A passenger pick-up and drop-off area with seat walls (short walls that can function as seating) would be located along the west side of the campus, along Gird Road. The project would include a lunch shelter with an adjacent event space (assembly plaza), mounded lawn with tiered seat walls at the event plaza. The site would include an outdoor collaboration courtyard, fitness pavilion, and arts courtyard.

The project would include an athletic field and running track, soccer field, natural turf playing fields, and a fitness pavilion with asphalt basketball courts.

The buildings would be of modern design and include contemporary features such as corrugated metal siding, fiber cement plank siding, fiber cement panels, aluminum storefront and glazing, corrugated metal roofing, and fiber cement plank screens. Exterior colors would be varied neutral colors of tans, browns, and light blue.

PROJECT COMPONENTS

Building/Facility	Number of Floors	Ground Area (SF/Acres)	Total Building Area (SF)
Administration/Student Support	1	5,500 sf	5,500 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building	2	16,200 sf	32,400 sf
Classroom Building & Learning Commons	2	16,200 sf	32,400 sf
Classroom Building – Art, Music, Drama, Food Service	1	17,800 sf	17,800 sf
Gymnasium/Lockers/Support	1	30,000 sf	30,000 sf
Total – Buildings		**3.2 acres/101,900 sf**	**150,500 sf**
Recreational Fields/Track/Field Building	-	3.4 acres	-
Landscape/Hardscape/Sports Courts	-	12.2 acres	-
Parking Lot/Bus Parking/Driveway	-	5.8 acres	-
Total Improvements - Non-Buildings	**-**	**21.4 acres**	**-**
Golf Course Encroachment		1.9 acres	
Total – Disturbed Area	**-**	**24.6 acres***	**-**
Total – Undisturbed Open Space Area	**-**	**22.4 acres***	
Total – Project Site	**-**	**48.9 acres****	
Offsite Improvements – Gird Road	**-**	**0.1 acres**	**-**

* Does not include existing golf course encroachment area.
** Does not include Gird Road easement area.
SOURCE: BakerNowicki design studio, 2017

The project site would be used on occasional weekends and weekday during non-school hours for sporting events, including: soccer, basketball, volleyball, and track and field. Stadium seating is not proposed for the athletic fields and athletic field light lighting is not proposed. The project site would also be used for occasional large public events such as graduation ceremonies. These large events would not occur more than a few times per school year.

Regional access to the site would be provided by I-15 via SR-76. Project site access would be provided via a new driveway on Gird Road with an onsite turn-around loop for pick-up/dropoff. The northbound left turn pocket in Gird Road would be 150 feet long as part of the project. The access driveway would be stop-sign controlled (i.e. drivers exiting the school onto Gird Road would encounter the stop sign). Acceleration and deceleration transition areas are proposed north and south of the access driveway on the west side of

Gird Road. Sidewalks are not proposed along Gird Road. No other improvements to Gird Road are planned as part of the proposed project. Minor improvements to Gird Road will be required to add a north bound left turn lane pocket and southbound deceleration driveway transition. These improvements will require minor shoulder grading and 6,600 square feet of new pavement located with the county right of way. An encroachment permit is required from San Diego County Public Works to complete work within the right of way.

A driveway extending from the parking lot to the food service building would provide fire/emergency access in addition to food delivery service access. There are bicycle lanes on Gird Road; however, no other bike or pedestrian access would be provided to the project site.

The project includes 60 stalls for staff/visitor parking and 139 stalls for student parking. A parking area for up to 12 school buses would be included on the project site contiguous to staff and student parking areas. Some students within the District would be bused to the high school, including students from the Pala Reservation and eastern Oceanside.

Construction of the project would be completed in two phases. Phase 1 and Phase 2 grading and site preparation and undergrounding of utilities is expected to commence in late 2019 and would last approximately three months. Building construction and development of the driveway, parking lot, landscaping, and lighting would last approximately 13 months. Phase 2 building construction and landscaping would begin in spring 2023. Phase 1 would be operational by summer 2021 and Phase 2 would be operational by summer 2025.

Project grading would be balanced onsite and would not require import or export material to create finished pads for building construction. The design and construction of the proposed project has been developed to adhere to State of California Department of Education design requirements and San Diego County Code (Gird Road improvements).

Project construction personnel and equipment onsite would vary depending on the construction task, and would include a range of construction trades and equipment, including grading, drainage, underground utilities, paving, building construction, lighting, landscaping and fencing. An average of 50 construction personnel would be expected to be onsite at any given time during the construction phase.

Project Location

The approximate 48-acre project site is located west of the intersection of Gird Road and Live Oak Creek Circle and north of State Route 76 within the community of Bonsall in unincorporated San Diego County. Specifically, the project site is located within the United States Geological Survey (USGS) 7.5-Minute Topographic Map

Bonsall Quadrangle. The approximate center of the project site is located at 33°19'19.85"N, 117°11'44.22"W.

The study area included the 48-acre project site and a 150-meter (500-foot) buffer around the site (Figure 4), where accessible.

Project Contact Information

Owner/Applicant: Mr. David Medcalf
Bonsall Unified School District
31555 Old River Road
Bonsall, CA 92003

Principal Investigator: Juan J. Hernandez
Hernandez Environmental Services
17037 Lakeshore Drive
Lake Elsinore, CA 92530
(909) 772-9009

Field Survey Methods

The California Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993) recommend a four-step approach to surveying for this species. The first phase (Phase I) involves a simple habitat assessment, which was completed during the preliminary biological resources assessment for the project in June 9, 2017 (Temperature ranged from 63°F to 71°F; Wind ranged from calm to 4 mph SW). The site's geographic location, elevation, vegetation, topography, and soil characteristics were evaluated relative to the BUOW's habitat requirements. Because the assessment indicated that the site does contain suitable BUOW habitat, the remaining three phases of the survey were performed.

Phase II of the survey protocol is comprised of a full-coverage, pedestrian transect survey of the project site. The required survey was performed on February 15, 2017. The survey protocol recommends the interval between survey transects should be no more than 30 meters to allow 100 percent visual coverage of the ground surface. Parallel transects spaced at no more than 30 meter intervals were walked across the project site. Handheld global positioning system (GPS) units were utilized to ensure that the transects were parallel and to maintain the desired spacing and transect orientation. All burrows of sufficient size to harbor BUOW were investigated for signs of use by the species, including presence of pellets, feathers, whitewash, or

nearby individuals. Where burrows exhibited signs of use, the burrow locations were recorded using GPS technology.

Phase III of the survey protocol includes determining BUOW use and recording BUOW behavior during four site visits. These site visits were conducted on four separate days during either the dawn survey period consisting of 1 hour before sunrise to 2 hours after sunrise, or the dusk survey period consisting of 2 hours before sunset to 1 hour after sunset. The survey dates and times, and weather conditions are presented in Table 1 below.

Table 1. Survey Information

Survey	Date	Survey Start Time	Sunrise/Sunset	Weather
1	February 15, 2017	0630 hours	0632 hours	43 degrees Fahrenheit, clear, winds 3-5 miles per hour wind from the northeast
2	March 16, 2017	0630 hours	0657 hours	50 degrees Fahrenheit, clear, winds 0-3 miles per hour from the northeast
3	March 28, 2017	0700 hours	0640 hours	51 degrees Fahrenheit, clear, winds 0-3 miles per hour from the north
4	April 4, 2017	0700 hours	0631 hours	52 degrees Fahrenheit, clear, winds 3-5 miles per hour from the north

Phase IV of the BUOW survey protocol involves preparing a survey report that presents the results of the protocol surveys. This Focused Burrowing Owl Survey Report constitutes the Phase IV report for the Bonsall High School project.

All encountered burrows or structure entrances were checked for the presence of BUOW, molted feathers, cast pellets, prey remains, eggshell fragments, tracks, or excrement. Natural or man-made structures and debris piles that could support BUOW were also surveyed. The locations of all suitable BUOW habitat, potential

burrows, BUOW sign, and any BUOW observed was recorded and mapped with a handheld GPS unit.

Air temperature, wind speed, and wind direction were recorded at the start and end of each survey. Following completion of each transect survey, the locations of any burrows detected were plotted on a map for use during the remaining protocol surveys. All wildlife species encountered visually or audibly during the field survey were identified and recorded in field notes. Binoculars were used to aid in the identification of observed wildlife. Photographs were taken to document existing conditions within the survey area.

Results

The Bonsall High School project site is vacant and contains six different habitat types, including non-native grassland, red willow, eucalyptus woodland, coast live oak woodland, ornamental vegetation and mulefat dominant vegetation. The project site contains three unnamed tributaries to the San Luis Rey River. These on-site ephemeral drainages flow southeast through the project site to an unnamed tributary to the San Luis Rey River which then flows south to the San Luis Rey River and ultimately into the Pacific Ocean. Surrounding land uses include residential uses to the north, a golf course to the south and west, and residential/ranch homes to the east. State Route 76 runs adjacent to the east side of the project site.

Four soil types are documented to occur on the project site: Altamont clay (AtD), 9 to 15 percent slopes; Grangeville fine sandy loam (GoA), 0 to 2 percent slopes; Ramona sandy loam (RaC), 5 to 9 percent slopes; and Ramona sandy loam (RaD2), 9 to 15 percent slopes. The project site topography is gently rolling with elevations ranging from 230 to 300 feet above mean sea level (AMSL).

Based on the results of the focused burrow survey conducted on February 15, 2017, it was determined that the project site provides suitable burrows/nesting opportunities for BUOW. A total of 4 burrows were checked and recorded (Figure 5). The majority of suitable burrows identified occur on small slopes within the boundaries of the project site. Although the project site supports fossorial mammal burrows and non-natural substrates capable of supporting BUOW, no BUOW or BUOW sign was observed at the entrance or adjacent to these burrows within the study area.

Despite systematic searches of the Bonsall High School project site and 150-meter buffer area, no BUOW or evidence (i.e., including scat, pellets, feathers, tracks, and

prey remains) were found which suggest recent or historical use of the study area by BUOW. Therefore, it can be concluded that BUOW are not currently present within the study area.

Recommendations

It is recommended that a preconstruction survey be conducted within 30 days prior to the start of any ground disturbing activities to avoid potential impacts to BUOW or other nesting birds, and to ensure that no BUOW have moved onto the project site.

Certification

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: April 27, 2017

Juan J. Hernandez
Principal Biologist

Enclosures:

Figure 1: Project Location Map
Figure 2: Project Vicinity Map
Figure 3: Project Plans
Figure 4: Survey Area Map
Figure 5: Survey Results Map

Figure 1
Location Map
Burrowing Owl Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

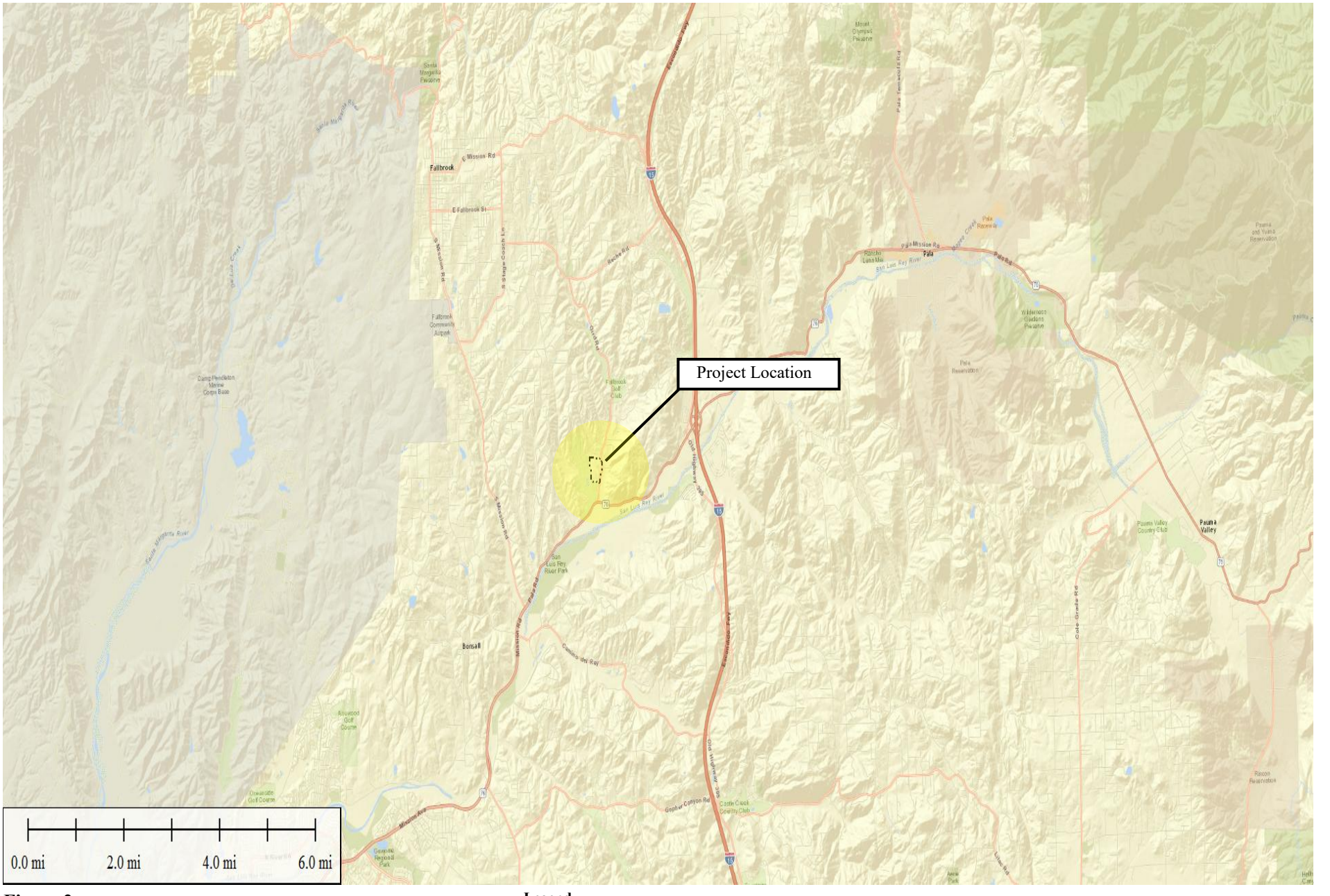


Figure 2
Vicinity Map
Burrowing Owl Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Hernandez Environmental Services

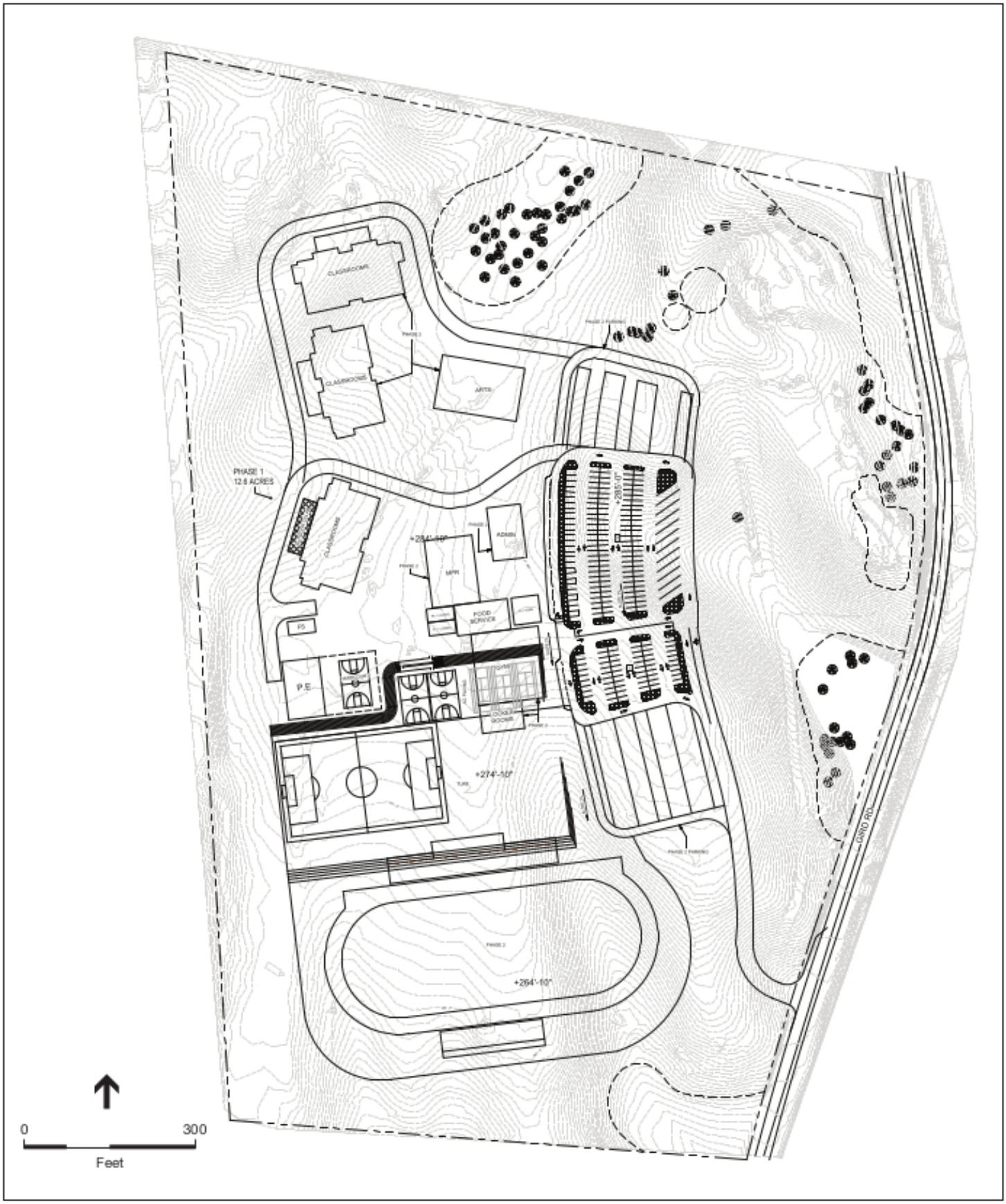


Figure 3
Project Plan Map
Burrowing Owl Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

N

Hernandez Environmental Services

Figure 4

Survey Area Map
Burrowing Owl Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Figure 5
Survey Results Map
Burrowing Owl Survey
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

BUOW Burrow Locations

N

Hernandez Environmental Services

Appendix J
Sensitive Bird Surveys

ESA

August 28, 2017

Stacey Love
Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Ave., Suite 250
Carlsbad, CA 92008

Subject: 45-Day Report—Presence/Absence Surveys for Least Bell's Vireo, Southwestern Willow Flycatcher, and Yellow-billed Cuckoo for Hernandez Environmental Services and Kidd Biological Inc for Bonsall Unified School District, San Diego County, California

Dear Ms. Love:

This letter and attached information is intended to satisfy the 45-day reporting requirements for the 2017 presence/absence surveys for Least Bell's Vireo (*Vireo bellii pusillus*), Southwestern Willow Flycatcher (*Empidonax traillii extimus*), and Yellow-billed Cuckoo (*Coccyzus americanus*) conducted by Kidd Biological Inc, who was hired by Hernandez Environmental Services for the Bonsall Unified School District in north San Diego county. Below you will find a summary of survey methods and results, and attached are Figures 1-6, species detections information table (Attachment A), the survey methods table (Attachment B), notes on other pertinent observations (Attachment C), survey data forms (Attachment D), site descriptions (Attachment E), and site photos (Attachment F). Figures 1-4 include maps of the survey areas and results for the species' surveys. Figure 5 show potential habitat for Southwestern Willow Flycatcher and Yellow-billed Cuckoo outside of the survey area. Figure 6 shows a map of the project site, survey area, and survey route. The species detection information table has the GPS coordinates and notes on all detections of the target species. The survey outline table summarizes the dates, times, survey personnel, and weather conditions of all protocol presence/absence surveys for the three species surveys. The notes on pertinent observations comprise an annotated list of other listed species observed during these surveys.

Project Site

The project site is located west of the intersection of Gird Road and Live Oak Creek Circle and north of State Route 76 within the community of Bonsall (Figure 1, Location Map). The project site is situated within an unincorporated area of north San Diego County between the community of Fallbrook to the north, the City of Oceanside to the west, the community of Valley Center to the west, and the North County Metropolitan Sub-region and City of Vista to the south (Figure 2, Vicinity Map). Overall access to the site is provided by State Route 76. Land uses surrounding the project site include residential development to the north, a golf course to the south and west, and vacant lands and residential development to the east.

The project site is located within the United States Geological Survey (USGS) 7.5-Minute Topographic Map *Bonsall* Quadrangle. The project site is gently rolling, with an elevation range of approximately 230 to 300 feet above mean sea level (MSL). The on-site drainages flow southeast into a tributary to the San Luis Rey River. The approximate center of the project site is located at 33°19'19.85"N, 117°11'44.22"W.

Survey Area

Due to the small amount of habitat suitable for any of the three survey species on the site, the areas just inside of the border of the project site and habitat adjacent is considered the survey area, because the project could provide disturbance to any individuals on these edges, if present. The surveyor walked the border of the project site to survey these edges. There were three small patches of habitat that overlapped into the project site included in the survey area (Figure 6).

Site Description

A total of six habitat types were observed on the 48-acre project site. Approximately 85% of the site consists of non-native grassland (Picture 1) with small patches of red/arroyo willow (*Salix spp*.), eucalyptus (*Eucalyptus spp*.), coast live oak (*Quercus agrifolia*), ornamental vegetation, and mulefat (*Baccharis salicifolia*). The survey area had several areas of potential habitat. The north side was bordered by backyards of residential homes, but had one small patch of willow on the northeast corner, consisting of coast live oak and red/arroyo willow (Picture 2), with an understory consisting of mulefat and wild grape (*Vitis spp*.). The west and south side consisted of pockets of riparian vegetation in the midst of a golf course (Pictures 3-5). This riparian vegetation is largely red/arroyo willow and various exotic trees (e.g. pepper, eucalyptus) with some tangled understory of wild grape, sandbar willow (*Salix exigua*) and mulefat. The east side of the site is bordered by a residential road (Gird Rd.) with a small linear patch of habitat in the drainage east of the road (Picture 6). The drainage consisted mostly of red/arroyo willow, but with a thick understory of wild grape and mulefat, with some exotic palms present. The presence of riparian vegetation and a water supply suggest that the survey area could be suitable for nesting Least Bell's Vireo and potentially Southwestern Willow Flycatchers. As the area is patchy, it is unlikely to be occupied by nesting Yellow-billed Cuckoos, however they may use the area for migration. It is unlikely to observe any of the three species within the project site due to the small amount of habitat available.

Survey Methods

The surveys for all three species were conducted by Angela Johnson (USFWS 10(A) permit number: TE59592B-1).

Suitable breeding habitat for Least Bell's Vireo, Southwestern Willow Flycatcher, and Yellow-billed Cuckoo was surveyed within each species' protocol timeline. Following the USFWS survey guidance of Spring 2016, target species surveys were conducted on a separate pass from each other, due to their differences in detectability. In the instances where all three species were surveyed on the same day, cuckoos would be surveyed first, followed by flycatchers, then vireos.

Least Bell's Vireo

Eight focused survey visits for least Bell's vireo were conducted in suitable habitat from the period of April 10 to July 31. Each survey visit was conducted at least 10 days apart with careful and thorough

coverage of all suitable habitats. All surveys were conducted between dawn and no later than 11:00 a.m., when Least Bell's Vireo are most active.

Southwestern Willow Flycatcher

Five focused survey visits for Southwestern Willow Flycatcher were conducted in suitable habitat, one within the first survey period (May 15–31), and two each within the second and third survey periods (June 1–24; June 25–July 17). Each survey visit was conducted at least 5 days apart with careful and thorough coverage of all suitable habitats. All surveys were conducted between one hour before sunrise and 10:30 a.m., when Willow Flycatchers are most active, except as noted above. Playing of recorded vocalizations was performed in suitable habitat and if flycatchers were detected, playing would be discontinued if the bird showed undue disturbance or potential predators were present.

Yellow-billed Cuckoo

Four focused survey visits for Yellow-billed Cuckoo were conducted in suitable habitat, one within the first survey period (June 15 – July 1), two within the second survey period (July 1 - 31), and one within the third survey period (July 1 – August 15). Each survey visit was conducted at least 12 days apart with careful and thorough coverage of all suitable habitats. All surveys were conducted early in the morning just before or at sunrise and ending no later than 11:00 am, when Yellow-billed Cuckoo are most active. Playing of recorded vocalizations was performed in suitable habitat. Survey methods followed *A Natural History and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo* (Halterman et al 2015).

Survey Results

Visit information for the survey area is compiled in the table in Attachment B, and the data form in Attachment C.

Least Bell's Vireo

Least Bell's Vireo were detected in the survey area on three out of eight protocol surveys. The number of individuals observed during the presence/absence surveys is summarized below and mapped in Figure 4. Further details of these sightings are listed in the table in Attachment A.

A single male Least Bell's Vireo was observed on April 16 during the first survey pass of the survey area. The bird was outside of the mapped project site (Figure 4, Figure 6), but was detected from within due to spontaneous singing. The vireo was actively singing in a linear area approximately 75m long, approximately 20m from the southeast corner of the project site. During the second survey pass on April 30, the male was observed singing repeatedly while in close proximity to a female vireo who was observed carrying nest material. No vireos were detected on the third survey pass, assuming the pair was actively incubating a nest. On May 28, during the fourth survey pass, the male was detected singing low and quietly in the vegetation, no female was detected. No Least Bell's Vireo were located during the subsequent four survey passes. No Least Bell's Vireo were detected within the project site.

Southwestern Willow Flycatcher

Although there were a couple locations in the survey area that appeared suitable for occupancy by Southwestern Willow Flycatchers (Figure 5), none were detected.

Yellow-billed Cuckoo

Although there was one location outside of the project site that appeared suitable for occupancy by Yellow-billed Cuckoos (Figure 5), none were detected.

Brown-headed Cowbirds

Brown-headed Cowbirds, both males and females were detected during the surveys, on all but two survey visits. One pair was observed together near the Least Bell's Vireo territory on the east side outside of the project site but within the survey area. As many as 5 were observed in the survey area on one survey, of which none of the individuals were detected inside of the project site. Those individuals were all detected on the west and south side border of the golf course where tall willows and sycamores were present. There was no confirmation of local breeding.

Recommendations

The survey area has potential for the occurrence of Least Bell's Vireo, Southwestern Willow Flycatcher, and Yellow-billed Cuckoo. The project site has little potential for occurrence for any of the three species, but it could be possible for any to forage along the small patches that do reside inside of the site. There are patchy areas of saturated soil throughout the survey area, due to drainages and a permanent water supply at the adjacent golf course, and it likely had higher water levels earlier in the season due to early seasonal rains. Low water levels from the past several years of drought have likely taken their toll on the amount and quality of the riparian vegetation, but the survey area does support suitable habitat. Most of the area inside of the project site was dry, however there was one small patch of saturated soil present, which is unlikely that it could support any of the target species due to the small patch size of the vegetation present.

Please do not hesitate to contact me with any questions.

Sincerely,

Angela M Johnson

Angela Johnson
Surveying biologist
TE59592B-1
birdnerd26@gmail.com
970-412-4777

Attachments

Figures 1-4: Survey Area Maps and Locations of Detections
Figure 5: SWFL and YBCU Potential Habitat Map
Figure 6: Survey Area and Survey Route Map
Attachment A: Species Detection Table
Attachment B: Protocol Presence/Absence Survey Outline Table
Attachment C: Additional Listed Species Observed During the Surveys
Attachment D: Survey Data Forms

Attachment E: Site Description Forms
Attachment F: Site Photos

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.

Angela M Johnson 8/28/17

Figure 1: Project Location

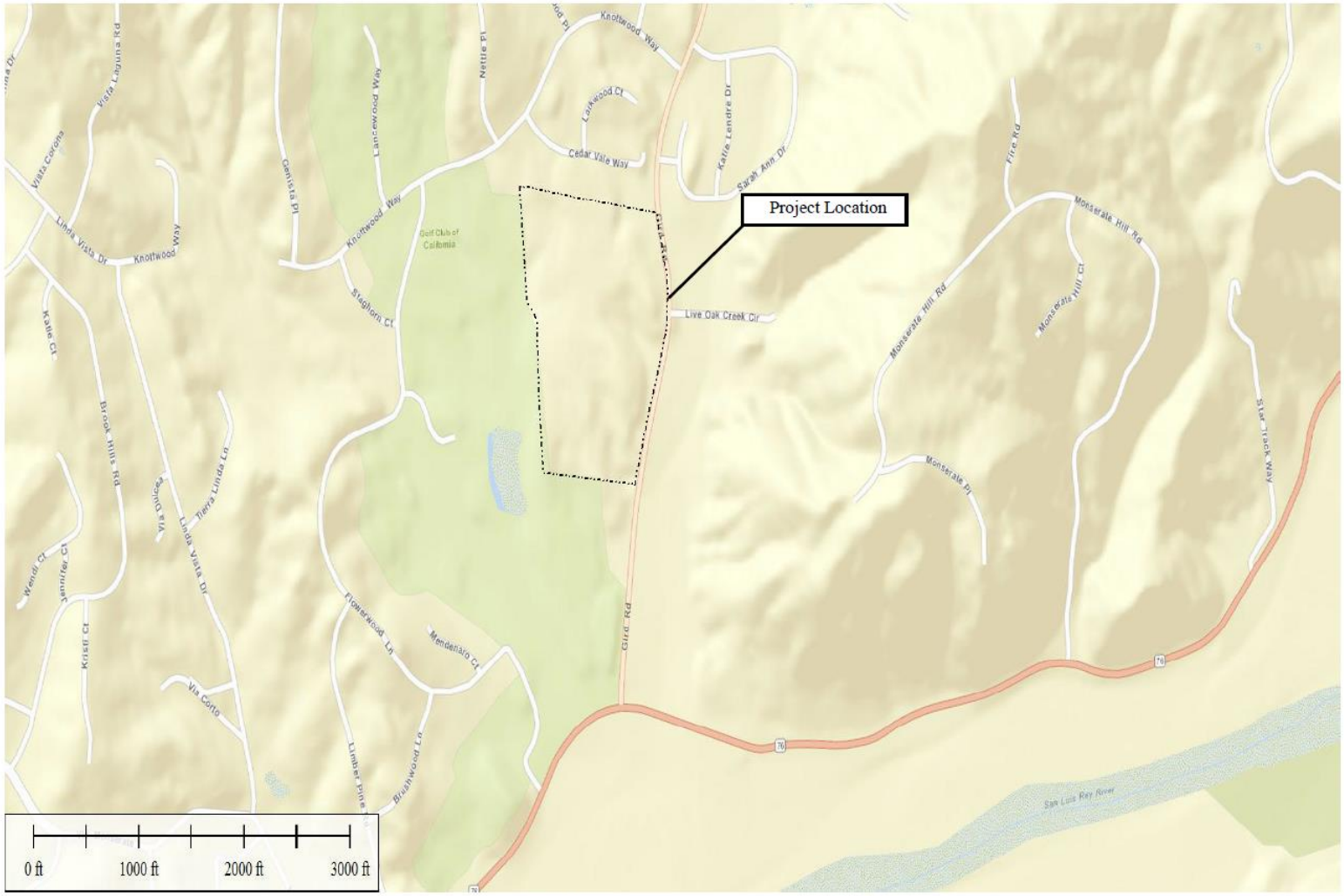


Figure 1
Location Map
Biological Resources Technical Studies
Bonsall School District APN 1243403400
Bonsall, San Diego County, CA

Legend

Project Location

N

Hernandez Environmental Services

Figure 2: Project Vicinity Map

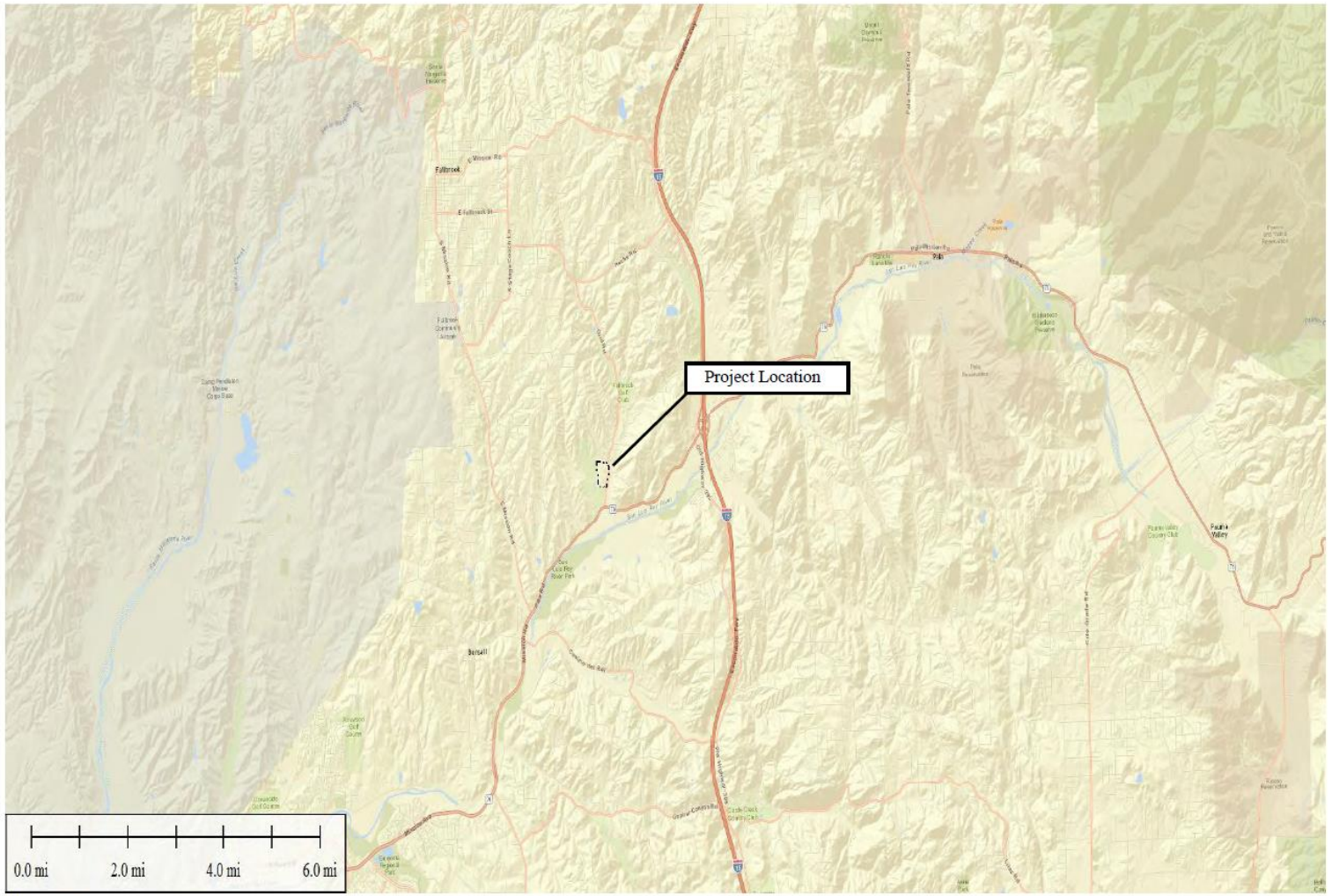


Figure 2
Vicinity Map
Jurisdictional Delineation
Bonsall School District
APN 1243403400
Bonsall, San Diego County, CA

Figure 3: Aerial Photo of Survey Area

Figure 4: LBVI Detections

Figure 5: SWFL and YBCU Potential Habitat

Figure 6: Survey Area and Survey Route

Attachment A: Species Detections Table

Species	Date	# Individuals	UTM E	UTM N	Notes
Least Bell's Vireo	4/16/2017	1	481948	3686786	Unbanded male singing continuously.
Least Bell's Vireo	4/30/2017	2	481948	3686786	Female observed nest building, male singing continuously.
Least Bell's Vireo	5/28/2017	1	481948	3686786	Male singing from low in vegetation.

Attachment B: Protocol Presence/Absence Survey Outline Table

Survey Date	Least Bell's Vireo Survey #	Surveyor	Protocol Survey Times		Atmospheric Conditions		
			Start Survey Times	End Survey Times	Air Temp (°F)	Percent Cloud Cover (%)	Wind Speed (mph)
4/16/2017	1	A. Johnson	0630	0815	49-54	40-70	1-3
4/30/2017	2	A. Johnson	0630	0800	53-61	0	1
5/14/2017	3	A. Johnson	0630	0800	51-57	20-70	2-5
5/28/2017	4	A. Johnson	0600	0900	50-65	0	2-3
6/11/2017	5	A. Johnson	0610	0810	58-66	100	2-4
6/24/2017	6	A. Johnson	0800	0930	65-70	100	5-7
7/8/2017	7	A. Johnson	0745	0915	69-72	0	1-3
7/23/2017	8	A. Johnson	0805	0910	69-74	0-15	1

Survey Date	SW Willow Flycatcher Survey #	Surveyor	Protocol Survey Times		Atmospheric Conditions		
			Start Survey Times	End Survey Times	Air Temp (°F)	Percent Cloud Cover (%)	Wind Speed (mph)
5/28/2017	1	A. Johnson	0600	0900	50-65	0	2-3
6/11/2017	2	A. Johnson	0610	0810	58-66	100	2-4
6/24/2017	3	A. Johnson	0800	0930	65-70	100	5-7
7/8/2017	4	A. Johnson	0745	0915	69-72	0	1-3
7/13/2017	5	A. Johnson	0615	0745	69-	100	1

Survey Date	Yellow-billed Cuckoo Survey #	Surveyor	Protocol Survey Times		Atmospheric Conditions		
			Start Survey Times	End Survey Times	Air Temp (°F)	Percent Cloud Cover (%)	Wind Speed (mph)
6/24/2017	1	A. Johnson	0600	0800	64-73	0	0-1
7/8/2017	2	A. Johnson	0545	0745	70-75	40-65	1-2
7/23/2017	3	A. Johnson	0600	0805	64-71	0	0-2
8/16/2017	4	A. Johnson	0605	0755	61-73	0	1

Attachment C: Additional Listed Species Observed during the Surveys

Yellow Warblers, a California Bird Species of Special Concern, were found in the survey area on every survey visit. Breeding was confirmed for this species with the observation of begging fledglings on several visits. There are a couple patches of habitat were suitable for nesting.

Yellow-breasted Chats, a California Bird Species of Special Concern, were found in the survey area on one survey visit. Breeding was not confirmed. A couple patches of habitat appeared suitable for nesting.

Cooper's Hawk, a California Fish and Game watch list species, was found in the survey area on three survey visits. There is potential for this species to be nesting nearby, as the surrounding habitat is suitable for nesting.

Attachment D: Survey Data Forms

Appendix 1. Willow Flycatcher Survey and Detection Form

Always check the U.S. Fish and Wildlife Service Arizona Ecological Services Field Office web site (http://www.fws.gov/southwest/es/arizona/) for the most up-to-date version.

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Bonsall High School State CA County San Diego
USGS Quad Name Bonsall Elevation 83m (meters)
Creek, River, Wetland, or Lake Name San Luis Rey River
Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? ***Yes___ No___***

Survey Coordinates: Start: E 481920 N 3687210 UTM Datum WGS84 (See instructions)
Stop: E 481630 N 3686749 UTM Zone 11 S
If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.
***** Fill in additional site information on back of this page *****

Survey # / Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, *Diorhabda* spp.]). If *Diorhabda* found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) A. Johnson	Date 5/28/17 Start 0600 Stop 0900 Total hrs 3.0	Ø								
Survey # 2 Observer(s) A. Johnson	Date 6/11/17 Start 0610 Stop 0810 Total hrs 2.0	Ø								
Survey # 3 Observer(s) A. Johnson	Date 6/24/17 Start 0800 Stop 0930 Total hrs 1.5	Ø								
Survey # 4 Observer(s) A. Johnson	Date 7/8/17 Start 0745 Stop 0915 Total hrs 1.5	Ø								
Survey # 5 Observer(s) A. Johnson	Date 7/13/17 Start 0615 Stop 0745 Total hrs 1.5	Ø								
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs		Total Adult Residents Ø	Total Pairs Ø	Total Territories Ø	Total Nests Ø	Were any Willow Flycatchers color-banded? Yes___ No ___ If yes, report color combination(s) in the comments section on back of form and report to USFWS.				

Reporting Individual Angela Johnson Date Report Completed 8/6/17
US Fish and Wildlife Service Permit # TE59592B-1 State Wildlife Agency Permit # In Process
Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Attachment D: Survey Data Forms

Yellow Billed Cuckoo Survey Summary Form

Site Name: Bonsall High School County: San Diego State: CA
USGS Quad Name: ~~Fallbrook North~~ Bonsall Elevation: 83m
Creek, River, Wetland, or Lake Name: San Luis Rey River
Site Coordinates: Start: E 481920 N 3687210 UTM Zone: 11 S
Stop: E 481630 N 3686749 Datum: WGS 84
Ownership: BLM Reclamation NPS USFWS USFS Tribal State (Private) Other (Municipal/County)
Was site surveyed in previous year? Yes (No) Unknown If yes, what site name was used?

Survey # Observer(s) (Last Name, First Initial)	Date (m/d/y) Survey, Time, Total Hours	Total Number of YBCUs detected.	Time Detected (AM):	Detect Type: I=Incidental P=Playback A=aural V=visual B=both	Voc. Type: CN=Contact CO=coo AL=alarm OT=other (describe)	Playback #: Number of times 'Kowlp' call played before YBCU responded	Behavior code	Surveyor Detection Coordinates UTM E	Surveyor Detection Coordinates UTM N	Distance (m)	Bearing	Cuckoo #	Corrected Coordinates UTM E	Corrected Coordinates UTM N
Survey Period #1 Observer(s): A. Johnson	Date: 6/24/17 Start: 0600 Stop: 0800 Total hrs: 2.0	Total: Ø												
Survey Period #2 Observer(s): A. Johnson	Date: 7/8/17 Start: 0545 Stop: 0745 Total hrs: 2.0	Total: Ø												
Survey Period #3 Observer(s): A. Johnson	Date: 7/23/17 Start: 0600 Stop: 0805 Total hrs:	Total: Ø												
Survey Period #4 Observer(s): A. Johnson	Date: 8/16/17 Start: 0605 Stop: 0755 Total hrs:	Total: Ø												
Survey Period #5 Observer(s):	Date: Start: Stop: Total hrs:	Total:												

Survey Summary:	# Det	#PO	#PR	#CO	#Nests found	Total Survey Hours:
Total YBCUs*						

Notes (refer to Cuckoo # associated with individual detections)

*Include justification for these designations.

VOCALIZATION	CODE
Contact	CON
Coo	COO
Knock/Alarm	ALA
Juvenile Calls	JUVC
Other Vocalization	OV

BEHAVIOR	CODE
No visual	NV
Sitting	ST
Foraging	FO
Preening	PRE
Flying	FLY
Distraction Display	DD

BEHAVIOR	CODE
Catches Prey	CP
Carry Food	CF
Eats Food	EF
At Nest	AN
Juvenile	JUV
Vocal Exchange	VEX

BREEDING	CODE
Copulation	COP
Feeds Mate	FM
Carry Nest Material	CN
Brooding/Incubating	BI
Feeds Nestling	FN
Feeds Fledgling	FF

NB = nest building, NE = active nest with unbroken eggs in it, NY = nest with young seen or heard in it, ON = occupied nest, US = used, inactive nest with blue-green eggshells.

Attachment E: Site Description Forms

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Angela M Johnson Phone # 970-412-4777
Affiliation Kidd Biological, Inc. E-mail birdnerd26@gmail.com
Site Name Bonsall High School Date Report Completed 8/6/17

Did you verify that this site name is consistent with that used in previous years? Yes ___ No ___ Not Applicable ✓
If site name is different, what name(s) was used in the past? ___
If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below.
Did you survey the same general area during each visit to this site this year? Yes ✓ No ___ If no, summarize below.

Management Authority for Survey Area : Federal ___ Municipal/County ___ State ___ Tribal ___ Private ✓
Name of Management Entity or Owner (e.g., Tonto National Forest) Bonsall Unified School District

Length of area surveyed: 0.65 (meters)

Vegetation Characteristics: Mark the category that best describes the predominant tree/shrub foliar layer at this site (check one):

___ Native broadleaf plants (entirely or almost entirely, > 90% native, includes high-elevation willow)

✓ Mixed native and exotic plants (mostly native, 50 - 90% native)

___ Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)

___ Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific name.
Salix spp., Baccharis salicifolia, Eucalyptus spp.

Average height of canopy (Do not include a range): 16m (meters)

Attach copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections.
Attach sketch or aerial photo showing site location, patch shape, survey route, location of any WIFLs or WIFL nests detected.
Attach photos of the interior of the patch, exterior of the patch, and overall site; describe any unique habitat features.

Comments (attach additional sheets if necessary)
Brown-headed cowbirds (males and females) were observed every survey period. High traffic observed on Gird rd. to the east, and a heavily used golf course on the west and south side of the survey area.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTM N	UTM E	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary

Attachment E: Site Description Forms

Yellow-Billed Cuckoo Survey Site Description Form

This form is intended to provide a general description of the habitat surveyed at a site. More detailed vegetation analysis requires precise measurements, and is outside the scope of this survey protocol. Please check your permit for additional requirements.

Fill in the following information completely		**Date Report completed:** 8/6/17
Site Name: Bonsall High School	State: CA	County: San Diego
Name of Reporting Individual Angela M Johnson	Affiliation Kidd Biological, Inc	
Phone # 970-412-4777	Email: birdnerd26@gmail.com	
USFWS Permit # TE59592B-1	State Permit # In Process	

Site Coordinates:	Start: E 481920	N 3687210	UTM Zone: 11S	
	Stop: E 481630	N 3686749	NAD: WGS 84	
USGS Quad Name(s): Bonsall		Length of area surveyed (in kilometers) 0.65	Elevation: 83m	
Name of nearest Creek, River, Wetland, or Lake: San Luis Rey River				
Ownership: BLM Reclamation NPS USFWS USFS Tribal State (Private) Other (Municipal/County)				
Was site surveyed in previous year? Yes (No) Unknown		If yes, what site name was used?		
Did you survey the same general area during each visit this year?		(Yes) / No	If no, summarize in comments below	
If "Yes", was the same general area surveyed this year?		(Yes) / No	If no, summarize in comments below	

Native/Exotic: The species in tree/shrub layer at this site are comprised predominantly of (check one):			
Native broadleaf plants (>75% native)	✓	Mixed native and exotic plants (mostly native 51%-75%)	
Exotic/introduced plants (>75% exotic)		Mixed native and exotic plants (mostly exotic 51%-75%)	

List up to 5 species of overstory vegetation and percent canopy cover of each species. Use scientific names. For percent cover, please use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. Salix spp. % cover: 50	2. Eucalyptus spp. % cover: 25	3. Quercus agrifolia % cover: 10
4. Platanus racemosa % cover: 10	5. Populus fremontii % cover: <1	
Average height of overstory (m)(do not include a range) 16	Estimated Overall Canopy Cover (percent) 15	

List up to 5 species of understory/shrub vegetation (not all sites will have a separate understory) and estimate percent understory cover of each species. Use scientific names. For percent cover, please use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. Salix spp. % cover: 50	2. Baccharis salicifolia % cover: 25	3. Vitis spp. % cover: 10
4. Baccharis pilularis % cover: 10	5. Tamarix spp. % cover: <1	
Average height of understory (m)(do not include a range) 4	Estimated Overall Cover (percent) 25	

Describe adjacent habitat (e.g. upland vegetation; desert scrub; urban/residential; agriculture/orchard; oak woodland)
Residential backyards border north side, a golf course borders west and south sides, and a public road borders the east side. other habitats include a small orchard and further upland was an area of coastal sage scrub.

List up to five categories of adjacent habitat, and estimate percent cover. Use <1%; 10%, 25%, 50%, 75%, 90%, 100%.

1. Residential/urban % cover: 75	2. Agriculture % cover: 10	3. Riparian % cover: 10
4. Coastal sage scrub % cover: 10	5. % cover:	

Was surface water or saturated soil present at or adjacent to site within 300 meters?	(Yes) No (circle one)
Was surface water or saturated soil present at or adjacent to all patches surveyed?	(Yes) No (circle one)

Comments. Please provide comments regarding differences between the survey patches within the site. For example, if the average canopy for this site is 30% cover, but within one patch it is 60% cover - please note. Also, please note significant differences between dominant overstory and understory vegetation among the patches. Document these differences with photographs whenever possible. Make sure to reference comments to photo number whenever available.
Area inside of survey area had no suitable habitat for YBCU. Areas adjacent to survey area appeared suitable so the habitat surrounding the survey site was surveyed instead. Golf course on west side has potential but habitat was patchy. Consisted of Salix spp (75%) Eucalyptus spp (25%), Schinus spp (10%), and a good understory. In general, patch sizes too small for nesting YBCU but has potential for migrating YBCU.

Attachment E: Site Description Forms

Site Name: Bonsall High School	Name of Reporting Individual Angela M Johnson
Phone # 970-412-4777	Email birdnerd26@gmail.com

Attach the following: 1) Copy of USGS 7.5 minute quad/topographical map(s) of survey area, outlining survey site and location of YBCU detection; 2) Sketch or aerial photo showing site location, patch shape,openings, survey route, and location of any detected YBCU or their nests; 3) Photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments. Check your permits for required documentation.

Area on east side past drainage and between coastal sage scrub habitat appears to have a high enough canopy but not as much understory. Also very linear and may not support YBCU for nesting habitat.

Attachment F: Site Photos

Attachment F: Site Photos

Appendix K
Cultural Resources Report

ESA

Confidential – Not For Public Distribution

Bonsall High School Project, Bonsall, California

Phase I Cultural Resources Assessment

Prepared for
Bonsall Unified School District
31505 Old River Road
Bonsall, CA 92003

May 2017

DRAFT

ESA

Confidential – Not For Public Distribution

Bonsall High School Project, Bonsall, California

Phase I Cultural Resources Assessment

Prepared for:
Bonsall Unified School District
31505 Old River Road
Bonsall, CA 92003

May 2017

Prepared by:
ESA
626 Wilshire Blvd. Suite 1100
Los Angeles, CA 90017

Project Director:
Monica Strauss, M.A., R.P.A

Principal Investigator:
Candace Ehringer, M.A., R.P.A.

Report Author:
Michael Vader, B.A.

Project Location:
Bonsall (CA) USGS 7.5-minute Topographic Quad
Township 10 South, Range 3 West, Unsectioned

Acreage: Approx. 49.8 acres

DRAFT

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300
www.esassoc.com

Irvine	Sacramento
Los Angeles	San Diego
Oakland	San Francisco
Orlando	Santa Monica
Pasadena	Seattle
Petaluma	Tampa
Portland	Camarillo

D160855.00

DRAFT

OUR COMMITMENT TO SUSTAINABILITY | ESA helps a variety of public and private sector clients plan and prepare for climate change and emerging regulations that limit GHG emissions. ESA is a registered assessor with the California Climate Action Registry, a Climate Leader, and founding reporter for the Climate Registry. ESA is also a corporate member of the U.S. Green Building Council and the Business Council on Climate Change (BC3). Internally, ESA has adopted a Sustainability Vision and Policy Statement and a plan to reduce waste and energy within our operations. This document was produced using recycled paper.

Table of Contents

Bonsall High School Project
Phase 1 Cultural Resources Assessment

Page

Introduction **1**
- Project Location 1
- Project Description 5

Setting **5**
- Natural Setting 5
- Prehistoric Setting 6
- Ethnographic Setting 8
- Historic Setting 9

Regulatory Framework **11**
- State 11
- Local 16

Archival Research **16**
- SCIC Records Search 16
- Historic Map and Aerial Review 18
- Native American Outreach 19

Cultural Resources Survey **20**
- Methods 20
- Results 20

Conclusion and Recommendations **24**

References Cited **27**

DRAFT

Appendices

A. Personnel
B. NAHC Sacred Lands File Search
C. DPR 523 Forms

List of Figures

Figure 1 Regional Location 2
Figure 2 Project Area Detail 3
Figure 3 Project Location 4
Figure 4 Survey Photos 21
Figure 5 Survey Photos 22

List of Tables

Table 1 Previous Cultural Resources Investigations within ½ Mile of the Project Area 17
Table 2 Previously Recorded Cultural Resources within ½ Mile of the Project Area 18

DRAFT

Executive Summary

Bonsall High School Project, Bonsall, California Phase 1 Cultural Resources Assessment

Environmental Science Associates (ESA) has been retained by the Bonsall Unified School District (BUSD) to conduct a Phase I cultural resources assessment for the Bonsall High School Project (Project) in support of California Environmental Quality Act (CEQA) environmental documentation. The proposed Project would include the construction of a new high school that would accommodate 1,500 students in grades 9-12 and 50-60 district staff. The proposed high school would include 140,000 – 157,000 square feet (SF) of floor space and would be constructed in phases. BUSD is the lead agency pursuant to CEQA.

The 49.8-acre Project area is located in the unincorporated community of Bonsall within Assessor Parcel Number (APN) 124-340-3400, approximately 0.30 miles north of the intersection of State Route 76 (SR 76) and Gird Road. Specifically, the Project is located in an unsectioned portion of Township 10 South, Range 3 West on the Bonsall USGS 7.5-minute topographic quadrangle.

A records search for the Project was conducted on February 10, 2017 at the California Historical Resources Information System (CHRIS) South Coastal Information Center (SCIC) housed at San Diego State University and included a review of all recorded cultural resources and previous studies within a ½-mile radius of the Project area. The records search results indicate that 25 cultural resources studies have been conducted within the ½-mile radius, covering approximately 66 percent of the ½-mile radius and the entirety of the Project area. A total of seven cultural resources have been previously recorded within the ½-mile radius, including five prehistoric archaeological sites (CA-SDI-681/5589, -1284, -4543, -17736, and -19442), one historic architectural resource (3640 Gird Road – residence) and one historic linear resource (P-37-028136 – Gird Road). The closest resource is P-37-028136 (Gird Road), located approximately 0.19 miles south of the Project.

A Sacred Lands File (SLF) search was conducted by the California Native American Heritage Commission (NAHC) on February 9, 2017. The results of the SLF search indicate that Native American cultural resources are not known to be located within the Project area. The NAHC also provided a list of Native American groups and individuals who are culturally and traditionally affiliated with the region. BUSD is currently engaged in consultation efforts pursuant to Assembly Bill 52. The results of the consultation will be summarized in the environmental document being prepared for the Project.

A systematic pedestrian survey of the Project area was conducted on February 15, 2017 with transect intervals spaced no more than 10 meters (approximately 30 feet) apart. Ground surface

DRAFT

visibility was largely 0-15 percent throughout much of the Project area, with some areas having slightly greater visibility of 25-30 percent. No cultural resources were documented within the Project area as a result of the survey, though one previously recorded resource, P-37-028136 (Gird Road), located immediately adjacent to the Project, was updated.

No cultural resources were identified within the Project area as a result of this study. One previously recorded cultural resource, P-37-028136 (Gird Road), is located adjacent to (approx. 10 feet) the Project area and will be used to access the Project area during construction. However, the road will not be re-paved, re-aligned, or otherwise altered as part of the Project, and the Project would not impact the resource. As such, no known resources would be impacted by the Project.

The Project area is considered sensitive for prehistoric archaeological resources and Project-related ground disturbing activities have the potential to impact previously unidentified archaeological resources that could qualify as historical resources or unique archaeological resources pursuant to CEQA. As such, recommended mitigation measures, including the retention of a qualified archaeologist, construction worker cultural resources sensitivity training, archaeological monitoring, and procedures to be followed in the event of inadvertent discovery of archaeological resources and/or human remains, are provided in the *Conclusions and Recommendations* section at the close of this report.

DRAFT

Bonsall High School Project
Bonsall, California

Phase 1 Cultural Resources Assessment

Introduction

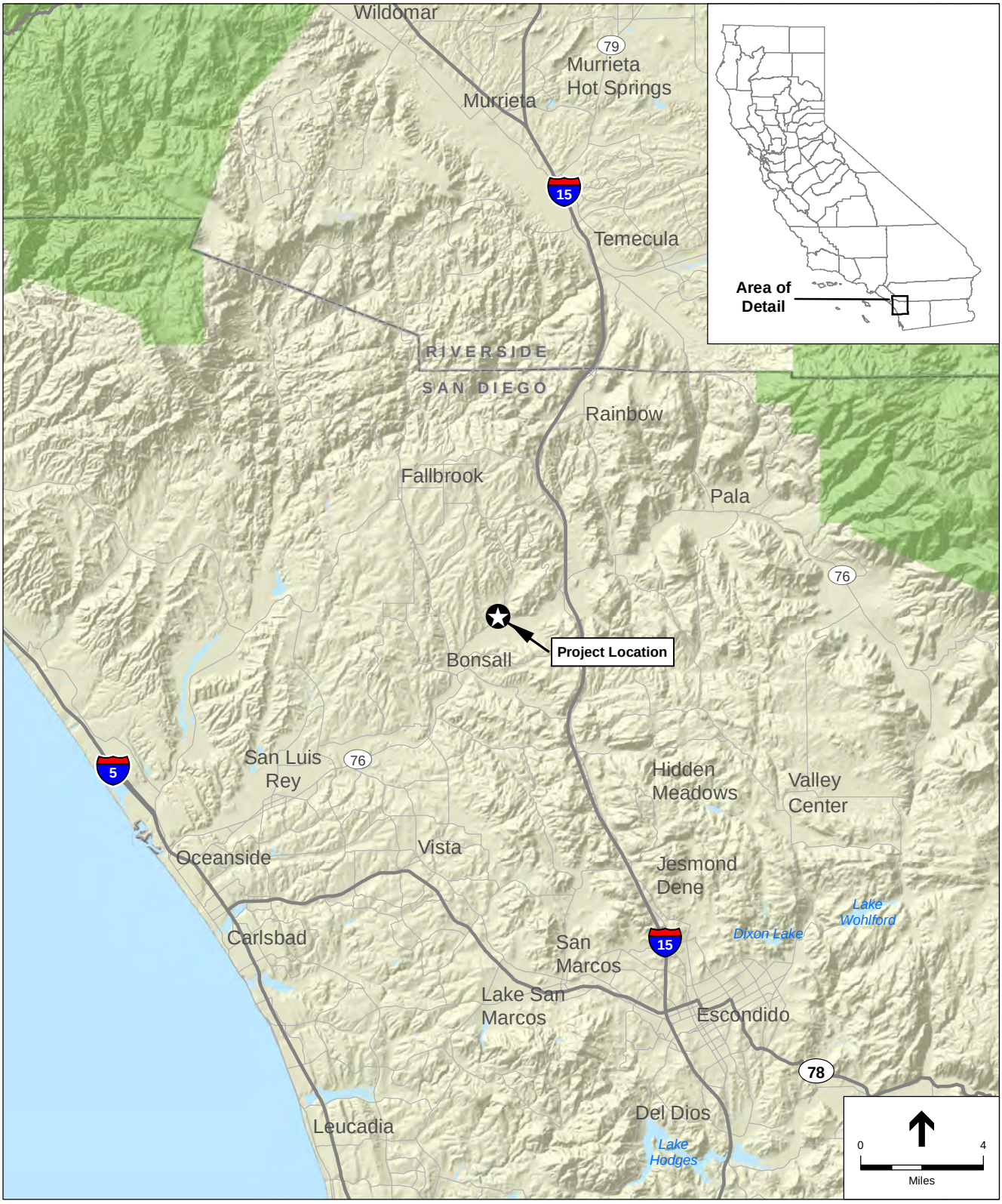
Environmental Science Associates (ESA) has been retained by the Bonsall Unified School District (BUSD) to conduct a Phase I cultural resources assessment for the Bonsall High School Project (Project) in support of California Environmental Quality Act (CEQA) environmental documentation. The proposed Project would include the construction of a new high school that would accommodate 1,500 students in grades 9-12 and 50-60 district staff. The proposed high school would include 140,000 – 157,000 square feet (SF) of floor space and would be constructed in phases. BUSD is the lead agency pursuant to CEQA.

ESA personnel involved in the preparation of this report are as follows: Monica Strauss, M.A., R.P.A., Project Director; Candace Ehringer, M.A., R.P.A, Principal Investigator; Michael Vader, report author and surveyor; and Anne Breister-Maloney, B.A., surveyor. Resumes of key personnel are included in **Appendix A**.

Project Location

The 49.8-acre Project area is located within the unincorporated community of Bonsall in the north-central portion of San Diego County (**Figure 1**). The Project is located within Assessor Parcel Number (APN) 124-340-3400 approximately 0.30 mile north of the intersection of State Route 76 (SR 76) and Gird Road (**Figure 2**). Specifically, the Project is located in an unsectioned portion of Township 10 South, Range 3 West on the Bonsall USGS 7.5-minute topographic quadrangle (**Figure 3**).

DRAFT



SOURCE: ESRI

Bonsall High School Project. 160855

Figure 1

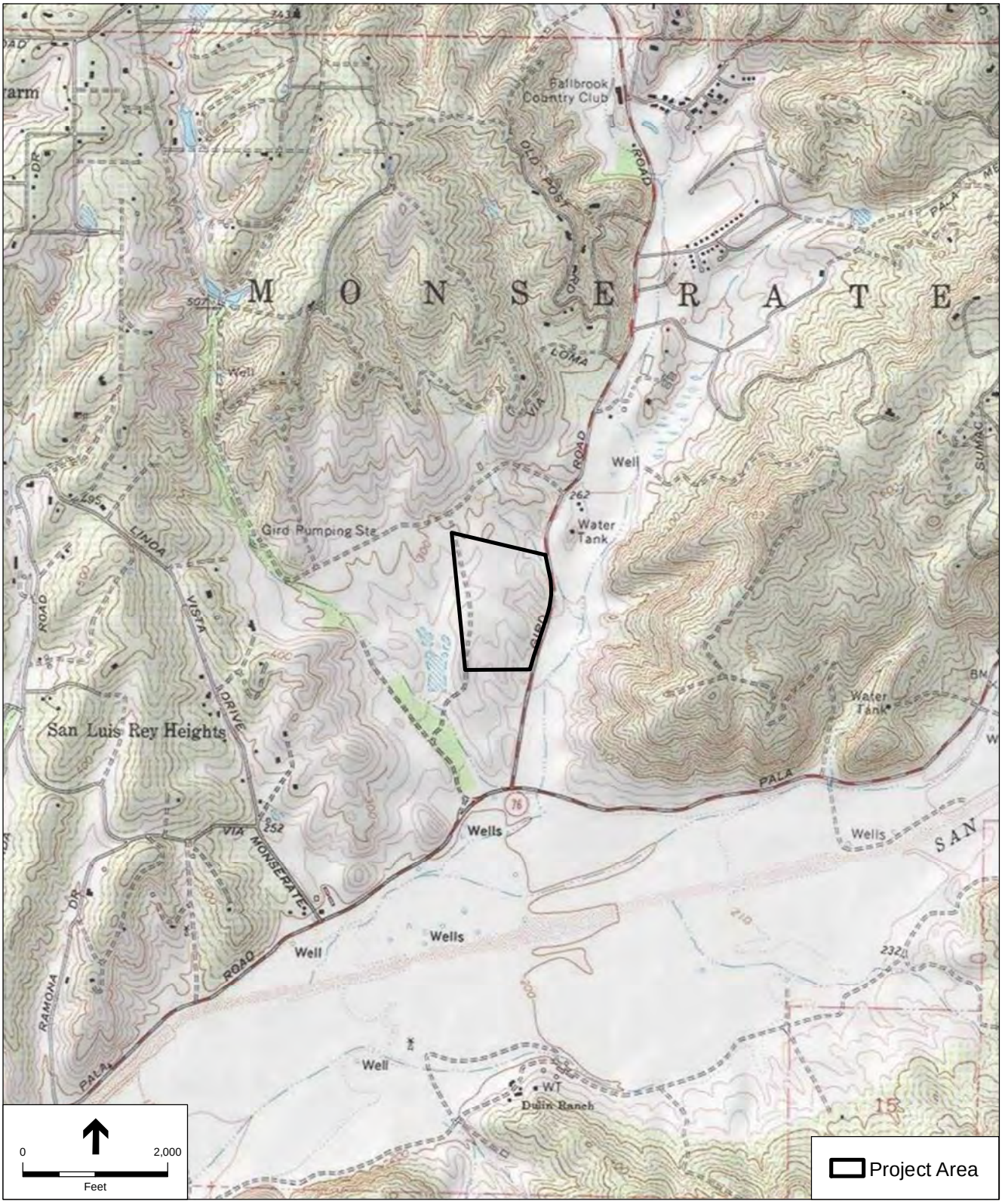
Regional Location

Source: ESRI

Bonsall High School Project. 160855

Figure 2

Project Detail



Topo Map: Bonsall 7.5-minute Quad

Bonsall High School Project. 160855

Figure 3

Project Location

Project Description

The proposed Project would provide approximately 140,000 – 157,000 square feet (sf) of floor area in a few, separate buildings. The classroom buildings are anticipated to be of two-story construction. The proposed buildings include permanent classroom facilities, administrative offices, media centers, and a gymnasium. Recreational fields and facilities which will include community use are also proposed. The site will provide access to dance, band, exercise, and physical educational programs using the on-site fields.

The Bonsall High School would provide educational facilities for grades 9–12 with a maximum enrollment of 1,500 students. An estimated 50-60 teachers, aides, administrators, and other personnel would staff the high school at maximum capacity.

Approximately 20 teachers, and additional support staff including aides, administrators, and other personnel would be required to staff the initial enrollment of 500 students in the first phase of the Project. The District estimates that the high school's instruction hours would be from approximately 8:30 a.m. to 3:30 p.m. Extra-curricular activities would take place from approximately 3: 30 p.m. to 7:30 p.m. The Gymnasium would operate both as an educational facility during school hours and between 3:00 p.m. and 10:00 p.m. for athletic and music programs, rehearsals, performances, and other community activities. These facilities could also be used during the weekends and over the summer months.

A parking area for school buses would be included in the Project site, contiguous to staff and student parking areas within appropriate portion of the school site for this purpose. Initially, it is anticipated that four buses would use this parking area. Capacity would be provided for up to 12 buses for special events or future busing needs. Buses routinely parked on this site would be those that currently serve the Bonsall High School demographic area.

Public transportation service for students attending the proposed new school is not anticipated. Vehicular access and circulation will be designed to provide safe access and comply with applicable governing authorities and regulations including all local, state, and federal requirements.

The school site would encompass approximately 39.5 usable acres of a 50-acre site which is consistent with the California Department of Education site standards. The recreational fields, gymnasium, and other school buildings would be available for community use after school hours, weekends, and holidays. Low horizon security lighting of the building complex and parking areas is planned. Night lighting of the hard-court surfaces may be considered in the future.

Setting

Natural Setting

The Project is located within the foothills of the Peninsular Mountain Range. The Peninsular Ranges province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California. The province

DRAFT

varies in width from approximately 30 to 100 miles. In general, the province consists of rugged mountains underlain by volcanic and sedimentary rocks, and igneous rocks of the Southern California Batholith (granitic rocks that constitute the core of many mountain ranges in western North America and underlie large portions of southern California). The Project area is located approximately 0.45 miles north of the San Luis Rey River and is characterized by a series of hills and drainage areas, which is surrounded by a predominance of low-density estate type residential subdivisions.

Prehistoric Setting

The chronology of coastal southern California is typically divided into three general time periods: the Early Holocene (11,000 to 8,000 Before Present [B.P.]), the Middle Holocene (8,000 to 4,000 B.P.), and the Late Holocene (4,000 B.P. to A.D. 1769). Within this timeframe, the archaeology of southern California is generally described in terms of cultural "complexes." A complex is a specific archaeological manifestation of a general mode of life, characterized archaeologically by particular technologies, artifacts, economic systems, trade relationships, burial practices, and other aspects of culture.

Early Holocene (11,000 to 8,000 B.P.)

While it is not certain when humans first came to California, their presence in southern California by about 11,000 B.P. has been well documented. At Daisy Cave, on San Miguel Island, cultural materials have been radiocarbon dated to between 11,100 and 10,950 years B.P. (Byrd and Raab 2007). On the mainland, radiocarbon evidence confirms occupation of the Orange County and San Diego County coast by about 9,000 B.P., primarily in lagoon and river valley locations (Gallegos 2002). In western Riverside County, few Early Holocene sites are known to exist. One exception is site CA-RIV-2798, which contains deposits dating to as early as 8,580 cal. B.P. (Grenda 1997). During the Early Holocene, the climate of southern California became warmer and more arid and the human population, residing mainly in coastal or inland desert areas, began exploiting a wider range of plant and animal resources (Byrd and Raab 2007).

The primary Early Holocene cultural complex in coastal southern California was the San Dieguito Complex, occurring between approximately 10,000 and 8,000 B.P. The people of the San Dieguito Complex inhabited the chaparral zones of southwestern California, exploiting the plant and animal resources of these ecological zones (Warren 1967). Leaf-shaped and large-stemmed projectile points, scraping tools, and crescentics are typical of San Dieguito Complex material culture.

Middle Holocene (8,000 to 4,000 B.P.)

During the Middle Holocene, there is evidence for the processing of acorns for food and a shift toward a more generalized economy in coastal and inland southern California. The processing of plant foods, particularly acorns, increased, a wider variety of animals were hunted, and trade with neighboring regions intensified (Byrd and Raab 2007).

The Middle Holocene La Jolla Complex (8,000–4,000 B.P.) is essentially a continuation of the San Dieguito Complex. La Jolla groups lived in chaparral zones or along the coast, often

DRAFT

migrating between the two. Coastal settlement focused around the bays and estuaries of coastal Orange and San Diego Counties. La Jolla peoples produced large, coarse stone tools, but also produced well-made projectile points and milling slabs. The La Jolla Complex represents a period of population growth and increasing social complexity, and it was also during this time period that the first evidence of the exploitation of marine resources and the grinding of seeds for flour appears, as indicated by the abundance of millingstones in the archaeological record(Byrd and Raab 2007).

Contemporary with the La Jolla Complex, the Pauma Complex has been defined at inland sites in San Diego and Riverside counties (True 1958). The Pauma Complex is similar in technology to the La Jolla Complex; however, evidence of coastal subsistence is absent from the Pauma Complex sites (Moratto 1984). The Pauma and La Jolla Complexes may either be indicative of separate inland and coastal groups with similar subsistence and technological adaptations, or, alternatively, may represent inland and coastal phases of one group's seasonal rounds. The latter hypothesis is supported by the lack of midden and deeply buried artifacts at Pauma sites, indicating that these sites may have been temporary camps for resource gathering and processing.

Late Holocene (4,000 B.P. to A.D. 1769)

During the Late Holocene, native populations of southern California were becoming less mobile and populations began to gather in small sedentary villages with satellite resource-gathering camps (Byrd and Raab 2007). Evidence indicates that the overexploitation of larger, high-ranked food resources may have led to a shift in subsistence towards a focus on acquiring greater amounts of smaller resources, such as shellfish and small-seeded plants (Byrd and Raab 2007).

Around 1,000 B.P., there was an episode of sustained drought, known as the Medieval Climatic Anomaly (MCA). While the effects of this environmental change on prehistoric populations are still being debated, it did likely lead to changes in subsistence strategies in order to deal with the substantial stress on resources (Jones and Schwitalla 2008). In coastal southern California, prior to the MCA but possibly accelerated by it, conditions became drier and many lagoons had been transformed into saltwater marshes. Because of this, populations abandoned coastal mesas and ridge tops to settle nearer to permanent freshwater resources (Gallegos 2002).

Trading reached its zenith during the Late Holocene, with asphaltum (tar), seashells and steatite being exchanged from southern California to the Great Basin. Major technological changes appeared as well, particularly with the advent of the bow and arrow, which largely replaced the use of the dart and atlatl (Byrd and Raab 2007). Small projectile points, ceramics, including Tizon brownware pottery, and obsidian from Obsidian Butte (Imperial County), are all representative artifacts of the Late Holocene.

It has been postulated that as early as 3,500 B.P., a Takic-speaking people arrived in coastal Los Angeles and Orange counties, having migrated west from inland desert regions (Kroeber 1925; Sutton 2009; Warren 1967). By around 1,500 to 1,000 B.P., Takic language and cultures had spread to the south and inland to the east. These new arrivals, linguistically and culturally different from earlier coastal populations, may have brought new settlement and subsistence systems with them, along with other new cultural elements. This migration has been postulated as

DRAFT

being a factor in several of the significant changes in material culture seen in the Late Holocene (such as the use of smaller projectile points and pottery), as well as the introduction of cremation as a burial practice.

The San Luis Rey culture (divided into San Luis Rey I [AD 1400 to 1750] and San Luis Rey II [AD 1750 to 1850]) represented the Late Period in southwestern Riverside County and northern San Diego County (Moratto 1984). San Luis Rey I village sites contain manos (hand stones), metates (grinding slabs), bedrock mortars, shell artifacts, and triangular arrow points. In addition to these features, San Luis Rey II sites are characterized by the presence of pottery, pictographs, and the cremation of the dead (Moratto 1984).

San Luis Rey settlement patterns in the upper San Luis Rey River drainage are typified by seasonally occupied lowland villages located in proximity to water sources, and highland villages occupied in the late summer and fall for acorn collection (True and Waugh 1982). The available information, stemming primarily from survey data, indicates that four primary site types existed within the region during the Late Period: field camps, resource procurement locations, residential bases, and villages (Mason 1999). Resource procurement locations and field camps, the most common site types, contain a limited assemblage of artifacts and subsistence remains, primarily lithic debitage, some tools, fire affected rock, and small amounts of animal bones and charred seeds and nuts. This indicates that these types of sites were used primarily for focused activities and short-term occupancy.

Villages and residential bases, on the other hand, show evidence for long-term occupation by large groups of people. Villages were occupied year-round, while residential bases were occupied seasonally. Artifacts and features found at both villages and residential bases, including large amounts of faunal and botanical remains, numerous high-quality tools, fire-affected rock, and anthrosols, indicate a wide range of activities (Mason 1999). Bedrock mortars point to the processing of seeds and acorns, and ceremonial activities are evidenced by the presence of pictographs, petroglyphs, and cupules within village sites.

Ethnographic Setting

Native Americans living in the Project area at the time of Spanish contact are now known as the Luiseño, after the Mission San Luis Rey to which many of them were relocated. The language of the Luiseño people has been identified as belonging to the Cupan group of the Takic subfamily, which is part of the larger Uto-Aztecan language family (Bean and Shipek 1978). Luiseño territory was bordered by Agua Hedionda Creek on the south and Aliso Creek on the northwest, encompassed most of the drainage of the San Luis Rey River and the Santa Margarita River, and extended east as far as the San Jacinto Mountains (Kroeber 1925). Today this area is located within northern San Diego, southern Orange, and Riverside Counties, and would have encompassed a diverse environment including lagoons and marshes, coastal areas, inland river valleys, foothills, and mountains. The neighbors of the Luiseño to the north and northwest were the Juaneño, Gabrielino, and Serrano; to the east were the Cahuilla and Cupeño; and to the south were the Kumeyaay.

DRAFT

The Luiseño subsisted on small game, coastal marine resources, and a wide variety of plant foods such as grass seeds and acorns. Luiseño houses were conical thatched reed, brush, or bark structures. The Luiseño inhabited permanent villages centered around patrilineal clans, with each village headed by a chief, or *not* (Kroeber 1925; Sparkman 1908). Seasonal camps associated with villages were also used. Each village or clan had an associated territory and hunting, collecting, and fishing areas. Villages were typically located in proximity to a food or water source, or in defensive locations, often near valley bottoms, streams, sheltered coves or canyons, or coastal strands (Bean and Shipek 1978). It is estimated that there may have been around 50 Luiseño villages with a population of about 200 each at the time of the first Spanish contact (Bean and Shipek 1978).

Today, there are six federally recognized tribes in California who share Luiseño tribal affiliation, language, and culture, including the La Jolla, Rincon, Pauma, Pechanga, Pala, and Soboba. The Pala Band of Mission Indians is the closest Native American group affiliated with the Project area.

Historic Setting

Spanish Period (A.D. 1769-1821)

Although Spanish explorers made brief visits the region in 1542 and 1602, sustained contact with Europeans did not commence until the onset of the Spanish Period. In 1769 Gaspar de Portola led an expedition from San Diego to the San Francisco Bay (McCawley 1996). This was followed in 1776 by the expedition of Father Francisco Garcés (Johnson and Earle 1990). The first known European to set foot in the vicinity of present-day Bonsall was a Franciscan padre, Father Juan Norberto de Santiago, who traveled into the region in October 1797 seeking a site to establish a new mission.

In the late 18th century, the Spanish began establishing missions in California and forcibly relocating and converting native peoples. Two missions were located in the vicinity of the Project area including: Mission San Juan Capistrano, located approximately 30 miles northwest of the Project and founded in 1776; and Mission San Luis Rey de Francia (San Luis Rey), located approximately 9 miles west of the Project and founded in 1798. With the establishment of Mission San Luis Rey, the Spanish began forcibly relocating and converting the regional Luiseño population. Throughout California, the mission system took a toll on the native populations through disease and hard labor; by 1900, the Native Californian population had declined by over 90 percent (Cook 1978). Furthermore, native economies were disrupted, trade routes were interrupted, and native ways of life were significantly altered by the mission system.

In an effort to promote Spanish settlement of Alta California, Spain granted several large land concessions from 1784 to 1821. At this time, unless certain requirements were met, Spain retained title to the land (State Lands Commission 1982).

Mexican Period (A.D. 1821-1848)

The Mexican Period began when Mexico won its independence from Spain in 1821. Mexico continued to promote settlement of California with the issuance of land grants. In 1833, Mexico

began the process of secularizing the missions, reclaiming the majority of mission lands and redistributing them as land grants. According to the terms of the Secularization Law of 1833 and Regulations of 1834, at least a portion of the lands would be returned to the Native populations, but this did not always occur (Milliken et al. 2009).

Many ranchos continued to be used for cattle grazing by settlers during the Mexican Period. Hides and tallow from cattle became a major export for Californios (native Hispanic Californians), many of whom became wealthy and prominent members of society. The Californios led generally easy lives, leaving the hard work to vaqueros (Hispanic cowhands) and Indian laborers (Pitt 1994; Starr 2007).

American Period (A.D. 1848-present)

In 1846, the Mexican-American War broke out. Mexican forces were eventually defeated in 1847 and Mexico ceded California to the United States as part of the Treaty of Guadalupe Hildalgo in 1848. California officially became one of the United States in 1850. While the treaty recognized the right of Mexican citizens to retain ownership of land granted to them by Spanish or Mexican authorities, the claimant was required to prove their right to the land before a patent was given. The process was lengthy and generally resulted in the claimant losing at least a portion of their land to attorney's fees and other costs associated with proving ownership (Starr 2007).

When the discovery of gold in northern California was announced in 1848, a huge influx of people from other parts of North America flooded into California. The increased population provided an additional outlet for the Californios' cattle. As demand increased, the price of beef skyrocketed and Californios reaped the benefits. However, a devastating flood in 1861, followed by droughts in 1862 and 1864, led to a rapid decline of the cattle industry; over 70 percent of cattle perished during these droughts (McWilliams 1946; Dinkelspiel 2008). This event, coupled with the burden of proving ownership of their lands, caused many Californios to lose their lands during this period (McWilliams 1946). Former ranchos were subsequently subdivided and sold for agriculture and residential settlement.

The first transcontinental railroad was completed in 1869, connecting San Francisco with the eastern United States. Newcomers poured into northern California. Southern California experienced a trickle-down effect, as many of these newcomers made their way south. The Southern Pacific Railroad extended its line from San Francisco to Los Angeles in 1876. The second transcontinental line, the Santa Fe, was completed in 1886 and caused a fare war, driving fares to an unprecedented low. In 1880, construction began on the California Southern Railroad, which would eventually connect San Diego with the Santa Fe railroad line through the Cajon Pass, by way of Temecula (Brigandi 2012). Settlers flooded into the region and the demand for real estate skyrocketed. The subdivision of the large ranchos took place during this time (Meyer 1981; McWilliams 1946).

Brief History of the Project Vicinity

After the establishment of Mission San Luis Rey in 1897, Mexican and European ranchers began settling in the Project area vicinity, and in 1816 the *asistencia* San Antonio de Pala was founded

DRAFT

7.5 miles east of the Project (Van Horn 1974). In 1846, the 13,322-acre, Mexican-era Monserate land grant, which encompasses the Project, was granted to Ysidro Alvarado. During the American-era Alvarado's ownership of the land was scrutinized by the U.S Land Commission and final approval of his title was not granted until 1870, seven years after Alvarado's death (Rivers 1998). Ownership of the Monserate lands was transferred to Alvarado's children: Tomas Alvarado, Dolores Alvarado de Serrano, and Lugarda Alvarado de Palomares. The land was divided into three 4,500-acre sections and distributed to Alvarado's heirs. The Project is located within the section of Monserate that was given to Dolores Alvarado de Serrano and her husband (Rivers 1998). They built a home in the lower portion Live Oak Canyon – the canyon in which the Project is located.

By the time the Alvarado heirs took possession of Monserate, Ysidro Alvarado's home had been rented to Simon Goldbaum and used as a store that supplied the needs of a growing number of homesteading families in the area (Rivers 1998). A small community was established along the eastern edge of Rancho Monserate, and by the early 1870s there was both a Monserate school and post office. Later, a second community variously known as Mt. Fairview and Osgood was established to the west and in 1889 the town petitioned for a post office (Bonsall Chamber of Commerce 2016). As part of the petition three names for the growing community were recommended including Reed, Favorite, and Bonsall, with the latter name being chosen. Bonsall is named for James Bonsall, a retired Methodist minister who developed a fruit nursery in the area in 1889 (Bonsall Chamber of Commerce 2016). Bonsall remained largely rural with surrounding areas being used for agricultural activities and by 1918 the population reached 100 (Bonsall Chamber of Commerce 2016).

In the late 1800s, four local schools were present in the vicinity of Bonsall including the Mt. Fairview School, the Monserrate School, the River School and the Oaks School (Funk 1984). By 1895, 41 children were attending Bonsall schools and by 1919 the Bonsall Union School District was formed. In 1920, a school bond election for $18,500 passed and a new school building of Spanish style, consisting of an auditorium, stage, small kitchen, two classrooms, and a principal's office was built (Funk 1984). As the Bonsall area grew, additional classroom space was needed and the Bonsall Union School was established. The school was built in sections over a period of 29 years, beginning in 1954 when two classrooms, an office, and a teacher's lounge were constructed. As student registration increased so did the size of the school, and in 1984, 30 classrooms and two trailers were added (Funk 1984).

Regulatory Framework

State

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at *Public Resources Code (PRC) Section 21000 et seq.* CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or unique archaeological resources.

DRAFT

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. An archaeological resource may qualify as an "historical resource" under CEQA. The *CEQA Guidelines* (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the *CEQA Guidelines* apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (*CEQA Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is as a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility for the California Register are based upon the National Register of Historic Places (National Register) criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the local, state, and/or federal level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the California Office of Historic Preservation (OHP) and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

DRAFT

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

Assembly Bill 52 and Related Public Resources Code Sections

Assembly Bill (AB) 52 was approved by California State Governor Edmund Gerry "Jerry" Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a Notice of Preparation (NOP) or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and

after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

California Health and Safety Code Section 7050.5

California Health and Safety Code Section 7050.5 requires that in the event human remains are discovered, the County Coroner be contacted to determine the nature of the remains. In the event the remains are determined to be Native American in origin, the Coroner is required to contact the California Native American Heritage Commission (NAHC) within 24 hours to relinquish jurisdiction.

California Public Resources Code Section 5097.98

California PRC Section 5097.98, as amended by AB 2641, provides procedures in the event human remains of Native American origin are discovered during project implementation. PRC Section 5097.98 requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery is adequately protected according to generally accepted cultural and archaeological standards, and that further activities take into account the possibility of multiple burials. PRC Section 5097.98 further requires the NAHC, upon notification by a County Coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. Once the MLD has been granted access to the site by the landowner and inspected the discovery, the MLD then has 48 hours to provide recommendations to the landowner for the treatment of the human remains and any associated grave goods.

In the event that no descendant is identified, or the descendant fails to make a recommendation for disposition, or if the land owner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that will not be subject to further disturbance.

Local

The Bonsall Community Plan, Conservation and Open Space Element (2011), contains the following cultural resources goals and policies relevant to this Project:

> **Goal COS-1.6:** Important historic and prehistoric archaeological resources are identified and preserved through adequate protection for new sites, as they are discovered.
>
> > **Policy COS-1.6.1:** Prevent development, trenching, grading, clearing and grubbing and other related activities that can be damaging to significant prehistoric or historic sites.
> >
> > **Policy COS-1.6.2:** Encourage the preservation and maintenance of the Bonsall Bridge as a historic structure of great beauty, symbolic of Bonsall's rural community character.
> >
> > **Policy COS-1.6.3:** Require the preservation of historic buildings and sites in the community:
> >
> > - The Original James Bonsall (Mullins) Residence - Little Gopher Canyon Road
> > - The Old Bonsall Bridge
> > - Bonsall Schoolhouse

Archival Research

SCIC Records Search

Methods

A records search for the Project was conducted on February 10, 2017 at the California Historical Resources Information System (CHRIS) South Coastal Information Center (SCIC) housed at San Diego State University. The records search included a review of all recorded cultural resources within a ½-mile radius of the Project area, as well as a review of cultural resource reports on file.

Results

Previous Cultural Resources Investigations

The records search results indicate that 25 cultural resources studies have been conducted within a ½-mile radius of the Project area (**Table 1**). Approximately 66 percent of the ½-mile records search radius has been included in previous cultural resources surveys. Of the 25 previous studies, three (SD-00146, -05109, and -10707) overlap the Project Area. The most recent of these three studies was prepared in 2006 by EDAW (Shalom and Tuthill 2006). The study included a pedestrian survey of the entire Project area. Dense grasses and standing water obscured much of the ground surface during EDAW's survey and no cultural resources were identified (Shalom and Tuthill 2006).

DRAFT

TABLE 1
PREVIOUS CULTURAL RESOURCES INVESTIGATIONS WITHIN ½ MILE OF THE PROJECT AREA

Author	SCIC # (SD-)	Title	Year
Beddow, Donna	07534	*Negative Survey Report for Granger Haugh TPM*	2002
Berryman, Stanly R.	00146*	*Archaeological Reconnaissance of Ranch Monserate Project*	1977
Case, Robert	05109*	*Phase I Cultural Resources Pedestrian Survey for the Lower San Luis Rey River Valley Groundwater Storage and Recovery Program, San Diego County , California*	2002
Daly, Kenneth	00006	*Environmental Impact Evaluation: Archaeological Survey of a Portion of the San Luis Rey river Valley Near Bonsall, San Diego County , California*	1976
De Barros, Philip	10907	*negative Cultural Resources Survey Report for a 24.61-Acre Parcel at 3624 Monserate Hill Road, Fallbrook, San Diego County, California*	2007
EDAW Inc.	13210	*State Route 76 Corridor SR-76 Highway Improvement Project Historic Property Survey Report*	2009
Fulmer, Scott	01050	*Archaeological Survey Report for Proposed Road Widening on Route 76 in San Diego County, 11-SD-776 P.M. 14.8-15.3 (11359-185090)*	1983
Fulmer, Scott	010157	*A Report of an Extended Phase I Investigation at Archaeological Site CA0SDI-5589 San Diego County, California 11-SD-79 P.M. 14.8-15.3 11359-185090*	1984
Fulmer, Scott	04274	*Request for Determination of Effect CA-SDI-5589*	1984
Fulmer, Scott	04275	*First Supplemental Historical Property Survey 11-SD-76*	1984
Fulmer, Scott	04276	*Request for Determination of Eligibility for Inclusion n he National Register of Historic Places SDI-5589*	1984
Fulmer, Scott	04291	*Historic Property Survey 11-SD-76 P.M. 14.8-15.3 11359-1185090*	1984
Laylander, Don	12003	*Archaeological Survey Report for the Morrison Advanced Mitigation Parcel near Bonsall, San Diego County, California*	2006
Mellon, Knox	06601	*Historic Property Survey Information Request S.R. 76 Widening and Realignment East of Bonsall, San Diego County 11-SD-76 P.M. 14.8-15.3*	1984
Recon	04032	*Draft Environmental Impact Report for Fallbrook Green*	1984
Rosen, Martin D.	01409	*Report of an Archaeological Survey on State Route 76 11-SD-76 P.M. 12.4/16.8 11209-116740*	1985
Rosen, Martin D.	04907	*Report of an Archaeological Survey on State Route 76*	1985
Rosen, Martin D.	06573	*Negative Archaeological Survey 4-Lane Expressway, City of Oceanside*	1991
Rosen, Martin D.	06578	*Negative Archaeological Survey Widening and Channelization of Route 76*	1991
Rosen, Martin D.	11822	*First Supplemental Historic Property Survey Report (HPSR-S1) for the State Route 76 Widening and Realignment Project, San Diego County, California*	2008
Rosen, Martin D.	12001	*First Supplemental Historic Property Survey Report for the State Route 76 Melrose to Mission Realignment and Widening Project*	2007
Shalom, Diane	10707*	*Cultural Resources Survey for the San Luis Rey River Park Master Plan San Diego, California*	2006
Tsunoda, Koji	14827	*Third Supplemental Historic Property Survey Report (HPST): State Route (SR) 76 Widening Project Between South Mission Road and Interstate 15*	2013
Tsunoda, Koji	14828	*Revised Third Supplemental Historic Property Survey Report (HPST): State Route (SR) 76 Widening Project Between South Mission Road and Interstate 15*	2013
Wright, Gail	12934	*Cultural Resources Survey Report for Dimitri, Diffendale and Kirk 4-Lot Subdivisions, 3200 21075 (TM) in Fallbrook, Negative Findings*	2011

*Indicates study overlapping the Project area

DRAFT

Previously Recorded Cultural Resources

The records search results indicate that seven cultural resource resources have been previously recorded within a ½-mile records radius of the Project area, none of which are within the Project area (**Table 2**). Of the previously recorded resources, five are prehistoric archaeological sites (CA-SDI-681/5589, -1284, -4543, -17736, and -19442), one is a historic architectural resource (3640 Gird Road – residence), and one is a historic linear resource (P-37-028136 – Gird Road).

Resource P-37-028136 (Gird Road) is a previously recorded segment of road located approximately 0.19 miles south of the Project. It was described as a paved two-lane road, which was constructed prior to 1901 and connected Fallbrook to the San Luis River Valley (Gregory and Bowden-Renna 2006). The road has not been previously evaluated for listing in the California Register; however, because the road has been paved and realigned since its original construction, Gregory and Bowden-Renna (2006) indicted that its integrity is poor and it no longer retains the essential features that would convey its historic identity.

TABLE 2
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN ½ MILE OF THE PROJECT AREA

Primary # (P-37-)	Permanent Trinomial (CA-SDI-)	Other Identifier	Description	Year Recorded	Distance from Project Area
000681/005589	681/5589	-	Prehistoric archaeological site: bedrock milling features and midden soil	1978	0.26 miles
001284	1284		Prehistoric archaeological site: bedrock milling feature	1971	0.14 miles
004543	4543	-	Prehistoric archaeological site: burnt shell fragments	2008	0.33 miles
027117	17736	-	Prehistoric archaeological site: rock art panel	2005	0.25 miles
028136	-	-	Historic linear resource: segment of Gird Road	2006	0.19 miles
030592	19442	-	Prehistoric archaeological site: bedrock milling feature	2008	0.43 miles
-	-	3640 Gird Road	Historic architectural resource: residence constructed in 1914	1996	0.15 miles

Historic Map and Aerial Review

Historic maps and aerial photographs were examined to provide historical information about the Project area and to contribute to an assessment of the Project area's archaeological sensitivity. Available maps include the 1901 San Luis Rey 30-minute topographic quadrangle, and the 1948 and 1968 Bonsall 7.5-minute topographic quadrangles. Historic aerial photographs of the Project area were available for the years 1938, 1946, 1953, 1967, 1981, 1989, 1995, 2002 and 2003 (historicaerials.com 2017). Additionally, Google Earth aerial imagery from 1995 through 2016 was reviewed.

Available historic maps and aerial photographs indicate that the Project vicinity was largely rural until the 1990s when it was subdivided and developed for residential purposes. The 1901 topographic map depicts the San Luis Rey River approximately 0.50 miles south of the Project, as well as two structures approximately 0.30 miles north of the Project area. The 1901 map also shows a north-south oriented dirt road located along the western margin of the Project area,

running north from the San Luis Rey River Valley to Fallbrook and beyond. A cluster of structures along the San Luis Rey River representing the town of Bonsall are located approximately 2.8 miles south of the Project on the 1901 map. In 1948 and 1968, the structures depicted on the 1901 map are still present; the north-south oriented road has been paved and is labeled Live Oak Park Road; Highway 395 appears approximately 2 miles east of the Project; and the east-west oriented Pala Road appears 0.36 miles south of the Project area on the north side of the San Luis Rey River.

Historic aerial imagery confirms that the Project vicinity was largely rural until the 1990s. On the 1938 and 1946 aerial photographs, the Project area appears to be undulating hills covered in grasses with a seasonal drainage to the northeast. A north-south oriented road skirts the eastern margin of the Project area, and a faint dirt road bisects the southwest corner on both the 1938 and 1946 aerial photos. There are structures that may be related to two farms approximately 0.25 miles to the north and northeast of the Project area. Little appears to have changed between 1946 and 1953, although there is a stock pond indicating cattle grazing located approximately 300 feet west of the southwest corner of the Project, and a north-south oriented dirt road bisects the Project's western margin. By 1981, there are a number of orchards on the hill slopes approximately 0.20 miles west of the Project, and by 1989, there is a residential subdivision 330 feet northeast of the Project area's northeast corner. By 1995, residential subdivisions and a golf course pop up around the Project area, and by 2003, it is completely surrounded by development. The northeastern portion of the Project appears to have been graded sometime after 1995, and sometime between 2003 and 2008, a number of graded dirt roads and debris piles appear within the Project area.

In sum, the historic map and aerial imagery review indicates that the Project vicinity was largely rural and undeveloped until the 1990s when residential subdivisions and a golf course were constructed. By 2003, the Project area was completely surrounded by development; however, with the exception of some minor dirt roadways, the Project site has never been developed, though it was likely subject to cattle grazing.

Native American Outreach

The NAHC maintains a confidential Sacred Lands File (SLF) which contains sites of traditional, cultural, or religious value to the Native American community. The NAHC was contacted on February 7, 2017 to request a search of the SLF. The NAHC responded to the request in a letter dated February 9, 2017 (**Appendix B**). The results of the SLF search indicate that Native American cultural resources are not known to be located within the Project area. The NAHC also provided a list of Native American groups and individuals who are culturally and traditionally affiliated with the region. BUSD is currently engaged in consultation efforts pursuant to AB 52. The results of consultation will be summarized in the environmental document being prepared for the Project.

DRAFT

Cultural Resources Survey

Methods

A Phase I cultural resources survey of the Project area was conducted on February 15, 2017 by ESA archaeologists Michael Vader, B.A., and Anne Breister-Maloney, B.A. The survey was aimed at identifying surface evidence of archaeological resources in the Project area and built environment resources within or immediately adjacent to the Project area. The entire Project area was subject to a systematic pedestrian survey using transect intervals spaced no more than 10 meters (approximately 30 feet) apart. All identified resources meeting the OHP's 45-year-old threshold were documented/updated on California Department of Parks (DPR) 523 forms.

Results

The Project area consisted of open ground characterized by rolling hills punctuated by small stands of oak and eucalyptus trees. The ground surface was largely covered with knee to waist-high non-native grasses, which reduced ground surface visibility to 0-15 percent throughout much of the Project area (**Figure 4**). Within the stands of oak and eucalyptus, grasses were not quite as thick; however, leaf litter reduced ground surface visibility to 25-30 percent (Figure 4). A number of debris piles consisting of large chunks of concrete with rebar, as well as asphalt were noted in the northeastern and east-central portions of the Project area (**Figure 5**). One debris pile was located within a shallow depression that appears to have been graded (Figure 5). The debris piles and depression date to between 2003 and 2008, as indicated by a review of aerial imagery, and do not meet the OHP's 45-year age threshold for recordation.

One previously recorded resource, P-37-028136 (Gird Road), was identified as a result of the survey. An approximate 0.34-mile long segment of the resource is located approximately 10 feet east of the Project area and was documented on a DPR 523 update form (**Appendix C**). The newly documented segment is consistent with the previous description: a two-lane, paved road, measuring approximately 30 feet wide (**Figure 6**).

DRAFT

Overview of thick grasses within Project area (view to west)

Overview of ground cover within tree stand (view to south)

SOURCE: ESA, 2017

Bonsall High School Project 160855.00

Figure 4
Survey Photos

Overview of debris piles in northeast portion of Project area (view to east)

Overview of depression within northeast portion of Project area (view to west)

SOURCE: ESA, 2017

Bonsall High School Project 160855.00

Figure 5
Survey Photos

Overview of Resource P-37-028136, Gird Road (view to NE)

SOURCE: ESA, 2017

Bonsall High School Project 160855.00

Figure 6
Resource Photos

Conclusion and Recommendations

No cultural resources were identified within the Project area as a result of this study. One previously recorded cultural resource, P-37-028136 (Gird Road), is located adjacent to (approx. 10 feet) the Project area. The road has not been previously evaluated for listing in the California Register; however, because the road has been paved and realigned since its original construction, Gregory and Bowden-Renna (2006) indicted that its integrity is poor and it no longer retains the essential features that would convey its historic identity. Gird Road would be used to access the site during Project construction, but will not be re-paved, re-aligned, or otherwise altered as part of the Project, and the Project would not impact the resource. As such, no known resources would be impacted by the Project.

Although no cultural resources were identified within the Project area this does not preclude the possibility that unknown cultural resources are present. Much of the ground surface within the Project was obscured by knee to waist-high grasses, which reduced ground surface visibility to 0-30 percent. Furthermore, as noted in the archival research section, EDAW's 2006 survey of the Project area noted poor ground surface visibility (Shalom and Tuthill 2006). Given the poor ground surface visibility, it is possible that unknown cultural resources are present within the Project area but are obscured by ground cover and could not be identified during the current survey or previous surveys. Additionally, the records search indicates five prehistoric archaeological sites have been previously documented within ½-mile of the Project. Given the number of previously recorded prehistoric archaeological sites as well as the Project's proximity to the San Luis Rey River, which would have attracted indigenous groups throughout prehistory, the Project area is considered sensitive for the presence of prehistoric archaeological resources and Project-related ground disturbing activities have the potential to impact previously unidentified archaeological resources that could qualify as historical resources or unique archaeological resources pursuant to CEQA. As such, ESA recommends the following five mitigations measures be implemented to reduce potential impacts to unknown archaeological resources and human remains to less than significant.

1. **Retention of a Qualified Archaeologist:** Prior to the start of ground-disturbing activities, BUSD shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (U.S. Department of the Interior 2008) to carry out the following measures.

2. **Construction Worker Cultural Resources Sensitivity Training:** Prior to start of ground-disturbing activities, the qualified archaeologist shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, and safety precautions to be taken when working with archaeological monitors. BUSD shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

DRAFT

3. **Construction Monitoring:** An archaeological monitor (working under the direct supervision of the qualified archaeologist) shall observe all initial ground-disturbing activities, including but not limited to brush clearance, vegetation removal, grubbing, grading, and excavation. The qualified archaeologist, in coordination with BUSD, may reduce or discontinue monitoring if it is determined that the possibility of encountering buried archaeological deposits is low based on observations of soil stratigraphy or other factors. Archaeological monitoring shall be conducted by an archaeologist familiar with the types of archaeological resources that could be encountered within the Project area. The archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of a discovery until the qualified archaeologist has evaluated the discovery and determined appropriate treatment (as prescribed in measure 4). The archaeological monitor shall keep daily logs detailing the types of activities and soils observed, and any discoveries. After monitoring has been completed, the qualified archaeologist shall prepare a monitoring report that details the results of the monitoring. The report shall be submitted to BUSD and any Native American groups who request a copy. A copy of the final report shall be filed at the SCIC.

4. **Inadvertent Discovery of Archaeological Resources:** In the event of the unanticipated discovery of archaeological materials, BUSD shall immediately cease all work activities in the area (within approximately 100 feet) of the discovery until it can be evaluated by the qualified archaeologist. Construction shall not resume until the qualified archaeologist has conferred with BUSD on the significance of the resource.

   If it is determined that the discovered archaeological resource constitutes a historical resource or unique archaeological resource pursuant to CEQA, avoidance and preservation in place shall be the preferred manner of mitigation. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological Resources Treatment Plan shall be prepared and implemented by the qualified archaeologist in consultation with BUSD that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. Bonsall USD shall consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resource, beyond that which is scientifically important, are considered.

5. **Inadvertent Discovery of Human Remains:** If human remains are encountered, BUSD shall halt work in the vicinity (within 100 feet) of the discovery and contact the San Diego County Coroner in accordance with PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the County Coroner determines that the remains are Native American, the NAHC will be notified in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC Section 5097.98 (as amended by AB 2641). The NAHC will designate an MLD for

DRAFT

the remains per PRC Section 5097.98. Until the landowner has conferred with the MLD, the contractor shall ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials.

DRAFT

References Cited

Bean, Lowell John, and Florence C. Shipek

1978 Luiseño. In *California*, edited by Robert F. Heizer, pp. 550-563. Handbook of North American Indians, Vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Bonsall Chamber of Commerce

2016 "History of Bonsall." Electronic document, https://bonsallchamber.wildapricot.org/History-of-Bonsall, accessed February 8, 2017.

Brigandi, Phil,

2012 "A Short History of Temecula". Electronic document, http://www.temeculahistoricalsociety.org/temeculahistory.html, accessed June 18, 2012.

Byrd, Brian F., and L. Mark Raab

2007 "Prehistory of the Southern Bight: Models for a New Millennium", in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp 215-227.

Cook, Sherburne F.

1978 "Historical Demography", In *California*, edited by Robert F. Heizer, pp. 91-98, Handbook of North American Indians, Vol. 8, W. C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Dinkelspiel, Frances

2008 *Towers of Gold*, St. Martin's Press, New York, 2008.

Funk, Virginia

1984 "The History of Bonsall Schools." Electronic document, http://www.bonsallusd.com/apps/pages/index.jsp?uREC_ID=231187&type=d&pREC_ID=528101, accessed on February 8, 2017.

Gallegos, Dennis

2002 "Southern California in Transition: Late Holocene Occupation of Southern San Diego County", in *Catalysts to Complexity: Late Holocene Societies on the California Coast*, edited by Jon M. Erlandson and Terry L. Jones, pp 27-40. Perspectives in California Archaeology Vol. 6, Cotsen Institute of Archaeology, University of California, Los Angeles.

Gregory, C. and C. Bowden-Renna

2006 *Primary Record for Resource P-37-028136*, on file at the South Coast Information Center, San Diego State University.

Grenda, Donn.

1997 *Continuity and Change: 8,500 Years of Lacustrine Adaptation on the Shores of Lake Elsinore.* Statistical Research Inc. (SRI) Technical Series 59, SRI, Tucson, Arizona.

DRAFT

Historicaerials.com
2017 *Historic Aerial Photographs from 1938, 1946, 1953, 1967, 1981, 1989, 1995, 2002 and 2003*. Electronic resource, http://www.historicaerials.com/, accessed February 9, 2017.

Johnson, John R. and David D. Earle
1990 "Tataviam Geography and Ethnohistory," in *Journal of California and Great Basin Anthropology*, Volume 12, Number 2, pp. 191-214, 1990.

Jones, T. L., and Schwitalla, A.
2008 Archaeological perspectives on the effects of medieval drought in prehistoric California. *Quaternary International* 188:41–58.

Kroeber, A. L.
1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletins, No. 78. Smithsonian Institution: Washington, D.C.

Mason, Roger D.
1999 *Results of Archaeological Test Programs at CA-RIV-1022, CA-RIV-3331, and CA-RIV-3332H, Cottonwood Hills Project Area, City of Lake Elsinore, Riverside County, CA*. Prepared by Chambers Group.

McCawley, W.
1996 *The First Angelinos: The Gabrielino Indians of Los Angeles*, Malki Museum Press, Banning, California

McWilliams, Carey
1949 *Southern California: An Island on the Land*, Gibbs Smith, Layton, Utah, 1949.

Meyer, L.
1981 *Los Angeles, 1781-1981: A special bicentennial issue of California history, Spring 1981*, California Historical Society, Los Angeles, 1981.

Milliken, Randall, Laurence H. Shoup, and Beverly R. Ortiz
2009 *Ohlone/Costanoan Indians of the San Francisco Peninsula and their Neighbors, Yesterday and Today*, prepared by Archaeological and Historical Consultants, Oakland, California, prepared for National Park Service Golden Gate National Recreation Area, San Francisco, California, June 2009.

Moratto, M. J.
1984 *California Archaeology*. Smithsonian Press: San Diego, CA.

Pitt, Leonard
1994 *The Decline of the Californios: A Social History of the Spanish-speaking Californians, 1846-1890*, University of California Press, Berkeley, 1994.

Rivers, Don
1998 *Division of Rancho Monserate*. Electronic resource, http://tchester.org/znet/fallbrook/history/memories/rancho_monserate_division.html, accessed February 8, 2016.

DRAFT

Shalom, Diane, and Collin Tuthill
2006 *Cultural Resources Survey for the San Luis Rey River Park master Plan San Diego, California*. Prepared for the County of San Diego by EDAW Inc., July 2006.

Sparkman, Philip Stedman
1908 *The Culture of the Luiseño Indians.* University of California Publications in American Archaeology and Ethnology 8(4).

Starr, Kevin
2007 *California: A History*, Modern Library.

State Lands Commission
1982 "Grants of Land in California Made by Spanish or Mexican Authorities," internet resource, www.slc.ca.gov/reports/grants_of_land/part_1.pdf, accessed February 8, 2012.

Sutton, Mark
2009 People and Language: Defining the Takic Expansion into Southern California. *Pacific Coast Archaeological Society Quarterly* 41(2/3):32-92, 2006, Printed September 2009.

True, Delbert L.
1958 An Early Complex in San Diego County, California, *American Antiquity*, 23(3):225-263.

True, Delbert L., and Georgie Waugh
1982 Proposed Settlements Shifts during San Luis Rey Times: Northern San Diego County, California. *Journal of California and Great Basin Anthropology* 4(1):34-54.

U.S. Department of the Interior, National Park Service.
2002 *National Register Bulletin: How to Apply the National Register Criteria for Evaluation.* National Park Service, Washington, D.C.

2008 *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (As Amended and Annotated),* www.nps.gov/history/local-law/arch_stnds_0.htm, accessed November 4, 2014, 2008.

U.S. Geological Survey (USGS)
1901 *Topographic map of the San Luis Rey 30-minute quadrangle*, San Diego and Riverside Counties, California. USGS, Boulder.

1948 *Topographic map of the Bonsall 7.5-minute quadrangle*, San Diego County, California. USGS, Boulder

1968 *Topographic map of the Bonsall, 7.5-minute quadrangle*, San Diego County, California. USGS, Boulder.

DRAFT

Van Horn, Kurt
1974 Tempting Temecula: The Making and Unmaking of a Southern California Community, *Journal of San Diego History* 20(1), 1974. Electronic Document, http://www.sandiegohistory.org/journal/74winter/temecula.htm, accessed June 18, 2012.

Warren, C.N.
1967 "The San Dieguito Complex: A Review and Hypothesis", *American Antiquity,* 32 (2): 168-18.

DRAFT

Appendix A
Personnel

DRAFT

Monica Strauss, RPA

Director, Southern California Cultural Resources Group

EDUCATION

M.A., Archaeology, California State University, Northridge

B.A., Anthropology, California State University, Northridge

AA, Humanities, Los Angeles Pierce College

20 YEARS EXPERIENCE

SPECIALIZED EXPERIENCE

Treatment of Historic and Prehistoric Human Remains

Archaeological Monitoring

Complex Shell Midden Sites

Groundstone Analysis

PROFESSIONAL AFFILIATIONS

Register of Professional Archaeologists (RPA), #12805

Society for California Archaeology (SCA)

Society for American Archaeology (SAA)

QUALIFICATIONS

Exceeds Secretary of Interior Standards

CA State BLM Permitted

Monica has successfully completed dozens of cultural resources projects throughout California and the greater southwest, where she assists clients in navigating cultural resources compliance issues in the context of CEQA, NEPA, and Section 106. Monica has extensive experience with archaeological resources, historic buildings and infrastructure, landscapes, and Tribal resources, including Traditional Cultural Properties. Monica manages a staff of cultural resources specialists throughout the region who conduct Phase 1 archaeological/paleontological and historic architectural surveys, construction monitoring, Native American consultation, archaeological testing and treatment, historic resource significance evaluations, and large-scale data recovery programs. She maintains excellent relationships with agency staff and Tribal representatives. Additionally, Monica manages a general compliance monitoring team who support clients and agencies in ensuring the daily in-field compliance of overall project mitigation measures.

Relevant Experience

Topock Compressor Station Remediation CEQA Services. Mohave County, AZ and San Bernardino County, CA. *Cultural Resources Project Director*. Monica is overseeing the preparation of cultural resources EIR sections and is providing project support to the California Department of Toxic Substances Control (DTSC), including facilitating Native American involvement. DTSC provides oversight of the site investigation and cleanup activities for the Pacific Gas and Electric Company (PG&E) Topock Gas Compressor Station, located in San Bernardino County, 15 miles southeast of Needles, California. Groundwater samples taken under and near the Station were found to be contaminated with hexavalent chromium and other chemicals as result of past disposal activities. Soils contamination is also present at the site, requiring investigation and cleanup. These activities are highly scrutinized by the regional Native American Tribes because the area has important cultural and religious significance. ESA is currently preparing an EIR for soil investigations and will be conducting CEQA evaluations that tier off of the Program EIR for the Groundwater Remedy. Additional project-specific EIRs may be required for the final remedy, which is currently undergoing engineering design. ESA will provide these services as well as lead the Native American and public participation efforts.

Los Angeles Department of Water and Power, Path 46 Clearance Surveys, San Bernardino, CA. *Field Director.* ESA has been tasked by Los Angeles Department of Water and Power (LADWP) to conduct required surveys for the Path 46 Transmission Line Clearances Project. The project's objective is to restore required code clearances to the transmission conductors, which will be accomplished by grading the ground surface underneath the transmission lines to achieve required height consistency. The work is being conducted in compliance with BLM guidelines and federal laws and statutes. Biological, archaeological, and paleontological resource surveys are currently being conducted for the 77

proposed grading areas, staging areas, and roads. Reports will be written documenting the results of the surveys and providing recommendations on the areas for access, staging areas, and soil distribution that would have the least amount of impacts on natural resources. Monica is providing support to LADWP in their coordination with the BLM, including providing oversight of map preparation, field surveys, and preparation of pre-field research designs and post-field technical reports.

Santa Clarita Valley Sanitation District, Facilities Plan Update EIR, Los Angeles County, CA. *Cultural Resources Senior Reviewer.* Monica is currently serving as senior reviewer for the Phase I cultural resources study for the project. The study identified 23 cultural resources within or adjacent to the project, including the historical San Fernando Road. The resources were documented and evaluated for their eligibility to the California Register in a technical report and the results were incorporated into the EIR. The project includes installation of an approximately 35-mile recycled water pipeline from the Santa Clarita Valley to east Los Angeles.

Ballona Wetlands Restoration EIS/EIR, Los Angeles County, CA. *Cultural Resources Project Director.* As part of the development of the restoration plan for the Ballona Wetlands, the ESA project team characterized existing conditions that included water and sediment sampling and analysis. The water and sediment quality sampling was performed to develop and evaluate potential restoration alternatives, and to develop a conceptual plan. The ESA project team compiled existing data on and conducted additional sampling for water and sediment to assess potential effects on the proposed wetland restoration habitat from the use of urban runoff and tidal in-flow from Ballona Creek. These data were used to complete a baseline report and restoration alternatives assessment. Monica is assisting the CSCC in fulfilling Army Corps of Engineers requirements under Section 106 of the National Historic Preservation Act. In addition, she is coordinating with Tribal members and is overseeing a team of resource specialists who are compiling cultural resources technical in preparation of the EIR's Cultural Resources section.

Bureau of Land Management, Soda Mountain Solar Project, San Bernardino County, CA. *Cultural Resources Director*. ESA prepared a joint EIS/EIR for a 358-megawatt (MW) photovoltaic (PV) solar power plant and related infrastructure on approximately 4,397 acres of public land administered by the BLM near the town of Baker and the Mojave National Preserve. The project includes a substation, switchyard, operations and maintenance buildings, and interconnection to a Los Angeles Department of Water and Power 500 kV transmission line. If BLM approves the requested ROW grant, it will be necessary for the BLM to amend the California Desert Conservation Area Plan to identify the ROW area as appropriate for the proposed solar energy development use. ESA also provided support to BLM related to cultural resources and Section 106 of the NHPA. Monica provided technical and compliance oversight for third-party review of cultural resources studies and for the cultural resources section of the joint EIS/EIR.

Los Angeles Department of Water and Power Moapa Road Repair Cultural and Biological Resources Assessment, Clark County, NV. *Project Director.* The Los Angeles Department of Water and Power (LADWP) is seeking to conduct roadway

repairs following flash flooding to several locations of LADWP transmission line access roads on Bureau of Land Management (BLM) lands. ESA conducted cultural and biological resources assessments to identify sensitive resources within the project area. Monica provided general oversight of the project and led the coordination with the BLM Las Vegas Field Office.

Santa Susana Field Laboratory, Ventura County, CA. *Cultural Resources Project Director.* The Santa Susana Field Laboratory is a former rocket engine test, nuclear, and liquid metals research facility located on a 2,849- acre portion of the Simi Hills in Simi Valley, California. The uses of hazardous substances such as trichloroethylene and other solvents, heavy metals, and radioactive material at the field laboratory have resulted in soil and/or groundwater contamination. The field laboratory is currently the focus of a comprehensive environmental investigation and cleanup program conducted by Boeing, the U.S. Department of Energy (DOE), and the National Aeronautics and Space Administration (NASA) and overseen by the Department of Toxic Substances Control (DTSC). ESA is preparing a Program EIR that will evaluate soil and groundwater remediation activities. Because there are multiple responsible parties with separate cleanup actions, the Program EIR will provide a framework for tiered environmental documents to be prepared to address the development and refinement of remediation approaches and actions. Monica is overseeing a team of specialists who are conducting a geoarcheological and archaeological district studies for use in addressing impacts to archaeological resources in the EIR. Monica provides strategic guidance to DTSC on cultural resources-related issues, including Tribal outreach, approach to the Traditional Cultural Property, resource evaluations, and treatment of cultural resources on a project and program level.

Los Angeles Department of Water and Power Lone Pine Landfill Paleontological Resources Recovery, Inyo County, CA. *Cultural Resources Project Director.* At the request of LADWP, ESA responded to a discovery of large mammal bone at the Lone Pine Landfill in an area where borrow materials were being excavated. ESA conducted geologic map research and recovered what was identified as a mammoth tusk. The tusk was stabilized, prepared for curation, and transported to a storage facility. Monica provided senior oversight of the paleontological resources recovery team and conducted paleontological resources sensitivity training and guidance to landfill staff in the event additional material are encountered.

Desert Sunlight Solar Farm, Riverside County, CA. *Third-Party Compliance Monitoring Manager.* Monica provided oversight to compliance monitors who conducted daily monitoring of site activities, assisted contractors in avoiding non-compliance issues, and prepared weekly reports, and she coordinated with First Solar and the BLM on compliance issues. ESA also assists with evaluation and approvals of project Variance Requests.

Candace R. Ehringer, RPA

Senior Cultural Resources Specialist

EDUCATION

M.A., Anthropology, California State University, Northridge

B.A., Anthropology, East Carolina University

18 YEARS EXPERIENCE

PROFESSIONAL AFFILIATIONS

Register of Professional Archaeologists

Society for California Archaeology

Society for Historical Archaeology

QUALIFICATIONS

Exceeds Secretary of the Interior's Standards

CA State BLM Permitted

CONTINUING EDUCATION

AEP Advanced CEQA Workshop, 2011

ACHP Section 106 Essentials training course, 2010

Riverside County certification course, 2009 and 2011

PROFESSIONAL PAPERS & PRESENTATIONS

Ehringer, C. 2014 Dead Men Do Wear Plaid: Garments and Notions for City Cemetery, Los Angeles, California. Oral paper presentation at the Society for Historical Archaeology 47th Annual Meeting, Quebec City, Quebec, Canada.

Candace is a cultural resources project manager with 18 years of experience working across California. Candace manages multi-disciplinary cultural resources projects which include archaeological, historic architectural, and paleontological resources components. She is adept at building teams of specialists from these resource areas that are uniquely qualified for the particular project at hand and has brought hundreds of projects to successful completion for both public agency and private development clients. Candace provides technical and compliance oversight for projects involving archaeological survey, evaluation, and treatment; built environment studies including the documentation and evaluation of buildings, structures, and districts; and paleontological resources survey and sensitivity assessments. She is proficient in the areas of CEQA, NEPA, and Section 106 and routinely provides planning and strategic guidance to clients within the larger scope of state and federal regulations.

Relevant Experience

San Gabriel River Confluence with Cattle Canyon Imporvemnts Project, Archaeological Services, Angeles National Forest, CA. *Principal Investigator.* ESA has been retained by BlueGreen Consulting to prepare a joint NEPA/CEQA document in support of a project that will provide recreational imporvements and ecological restoration algon a 1.5-mile reach of the East Fork of the San Gabriel River in the Angeles National Forest. Archival research indicates that the project is within an area subject to historic mining activities. Candace is currently managing the preparation of a cultural resources survey report, She previously conducted archival research, and composed a preliminary constraints memo.

California Department of Water Resources (DWR), Cantua Creek Stream Group Improvements Project, Fresno County, CA. *Project Manager*. The California Department of Water Resources (DWR) proposes to implement the Cantua Creek Stream Group (CCSG) Improvements Project (Project). The CCSG is composed of five major creeks: Arroyo Hondo, Cantua, Salt, Martinez, and Domengine. The CCSG drains a portion of the Coast Range, located west of the Project area. Presently, floodwaters from the CCSG terminate at four locations (Basins 1-4) along an approximately 13-mile stretch of the San Luis Canal; Martinez Creek flows into Salt Creek about 3 miles upstream of the San Luis Canal. Candace managed the preparation of a Cultural Resource Inventory and Evaluation Report, Finding of Effect, and Paleontological Resources Report in compliance with Section 106 of the National Historic Preservation Act and CEQA. The Bureau of Reclamation was the lead federal agency.

DWR, California Aqueduct Bridges Seismic Retrofit, Kern and San Bernardino Counties, CA. *Project Manager*. Candace managed the completion of an Archaeological Survey Report, a Historical Resources Evaluation Report, a Historic

Properties Survey Report, and Finding of Effect document in coordination with the California Department of Transportation (Caltrans) and DWR. DWR proposes to remedy structural seismic deficiencies for six existing bridges spanning the California Aqueduct. The California Aqueduct was determined eligible for listing in the National Register under Criteria A and C for its association with irrigation and agricultural development of California and water conveyance engineering and design. The six bridges are considered contributors to the aqueduct system.

DWR, Serrano Beach Project, Los Angeles County, CA. *Project Manager*. Candace managed a Phase I cultural resources study, including archival research, survey, and report. DWR proposes to repair culverts along the Serrano Beach access road near the Pyramid Lake Vista Del Lago Visitors Center, replacement of a fence surrounding an existing water tank, and installation of a new water pipeline near the Warne Powerplant. The project is located within the Angeles National Forest, requiring compliance with Section 106 of the National Historic Preservation Act. The study concluded that the area is sensitive for archaeological resources and monitoring was recommended.

DWR, AVEK Turnout Project, Los Angeles County, CA. *Project Manager*. Candace managed the preparation of and co-authored a technical memorandum documenting a historic resource impact assessment for the West Branch of the California Aqueduct in compliance with California Public Resources Code Sections 5024 and 5024.5. The project includes construction of a new turnout facility on the West Branch of Pool 42. The West Branch is a potential contributing element of the California Aqueduct, a National Register-eligible resource. The assessment concluded that the project not result in a substantial adverse change to the significance of a historical resource. The results of the study were incorporated into an MND for the project.

LADWP, Emergency Repairs to Victorville-Century Transmission Line #2 Tower 211.1 and Access Road, San Bernardino County, CA. *Lead Cultural Resources Monitor*. Candace served as the lead cultural resource monitor during emergency repairs and grading of an access road in the San Bernardino National Forest. She documented three historic resources, including one previously recorded resource, the transmission line, and two newly recorded resources, a communications shack and the transmission line access road with related drainage features.

Santa Clarita Valley Sanitation District, Facilities Plan Update EIR, Los Angeles County, CA. *Cultural Resources Project Manager.* Candace managed the Phase I cultural resources study for the project. The study identified 26 cultural resources within or adjacent to the project, including the historical San Fernando Road. Candace authored a historical context and evaluated the road for its eligibility to the National Register and California Register. The results of the study were incorporated in the EIR. The project includes installation of a approx. 35-mile recycled water pipeline from the Santa Clarita Valley to East Los Angeles.

Michael Vader

Associate Archaeologist

EDUCATION

B.A., Physical Anthropology, University of California, Santa Barbara

9 YEARS EXPERIENCE

PROFESSIONAL AFFILIATIONS

Society for California Archaeology (SCA)

Society for American Archaeology (SAA)

Pacific Coast Archaeological Society (PCAS)

SPECIALIZED EXPERIENCE

Analysis of faunal remains including fish and shellfish species

Archaeological Monitoring

Paleontological Monitoring

Environmental Compliance Monitoring

Human osteology and bioarchaeology

Michael is an archaeologist and environmental compliance monitor with experience working on survey, data recovery, and monitoring projects. Michael has experience with project management, has led crews on multiple surveys, and is familiar with environmental compliance documents. He has worked on a variety of energy and water infrastructure projects throughout California, including projects in Riverside, San Diego, Imperial, San Bernardino, Los Angeles, Orange, Santa Barbara, San Luis Obispo, Kern, Fresno, Madera, and Inyo Counties. Michael regularly works as part of a team, coordinating with construction personnel and Native American representatives.

Relevant Experience

City of Los Angeles Department of Water and Power, City Trunk Line Unit 3 Project, Los Angeles, CA. *Archaeologist.* ESA has conducted a Phase 1 cultural resources assessment for the Los Angeles Department of Water and Power (LADWP), City Trunk Line Unit 3 Project (Project). LADWP plans replacing a portion of the City Trunk Line on Coldwater Canyon Avenue between Vanowen Street and Magnolia Boulevard, within the City of Los Angeles. The proposed Project would involve the installation of approximately 10,250 linear feet of 60-inch diameter water pipeline constructed of welded steel. Michael led the Phase 1 cultural resources survey of the Project area and prepared the technical report and the cultural resources ISMND section.

City of Los Angeles Department of Water and Power, Barren Ridge Switching Station, Kern County, CA. *Archaeologist.* ESA has prepared a Phase I cultural resources study for the Los Angeles Department of Water and Power Barren Ridge Switching Station Project, located in Kern County, CA. The proposed project includes the expansion of the existing Barren Ridge Switching Station. The expansion would consist of the development of 3.7-acres of undeveloped land on the east side of the switching station. Michael led the cultural resources survey and prepared the technical report for the study.

City of Los Angeles Department of Water and Power, Haskell Canyon Switching Station, Los Angeles County, CA. *Archaeologist.* ESA has prepared a Phase I cultural resources study for the Los Angeles Department of Water and Power (LADWP) Haskell Canyon Switching Station Project, located in Los Angeles County, CA. The proposed project includes the construction of the Haskell Canyon Switching Station on LADWP owned and private property south of the Angeles National Forest. Construction of the switching station would consist of clearing and upgrading of access roads, site grading and development, and installation of electrical conduits, structures, and equipment. Michael led the cultural resources survey and assisted in the preparation of the technical report.

City of Los Angeles Department of Water and Power, Well V817 Rose Valley Pipeline Installation Project, Inyo County, CA. *Archaeologist.* ESA archaeologists have conducted an Extended Phase I investigation of site CA-INY-6980/H, and prepared an Extended Phase I testing report, as well as a MND for the Los Angeles Department of Water and Power Well V817 Rose Valley Pipeline Installation Project, located in Inyo County. The project involves the installation of an 8-inch diameter water pipeline with a length of 1,542 feet that would transport pumped water from Well V817 southwest to a staging area near the First Los Angeles Aqueduct. Michael assisted with testing of site CA-INY-6980/H, which consisted of a high-density scatter of prehistoric artifacts, and contributed to the Extended Phase I testing report.

California Department of Water Resources, Perris Dam Project-Regional Conservation Authority Mitigation Area, Riverside County, CA. *Archaeologist.* ESA archaeologists have prepared a Phase I cultural resources survey report and for the California Department of Water Resources (DWR) for a habitat restoration program within Riverside County. DWR plans to implement a restoration program within the Regional Conservation Authority mitigation area with the purpose to create/restore riparian habitat that is biologically equivalent or superior to that which is being impacted as a result of the Perris Dam Remediation Program being carried out at Lake Perris. Michael led the archaeological survey of the project site, and contributed to the survey report.

California Department of Water Resources, Pearblossom Solar Project, Los Angeles County, CA. *Archaeologist.* ESA archaeologists have prepared a Phase I cultural resource study and an IS/MND in support of the California Department of Water Resources' Pearblossom Solar Project located in Antelope Valley, Los Angeles County, CA. The project includes the installation of photovoltaic solar panels on approximately 70-acres of land within the Pearblossom Pumping Plant. The solar panels would generate approximately 10 megawatts (MW) of energy which would be transmitted to Southern California Edison via a nearby 230 kilovolt (kV) radial distribution line. Michael led the Phase I cultural resources survey and contributed to the technical report and IS/MND.

California Department of Water Resources, Serrano Beach Access Road Culvert Repair Project, Los Angeles County, CA. *Archaeologist.* ESA archaeologists have prepared a Phase I cultural resources study for the California Department of Water Resources' Serrano Beach Access Road Culvert Repair project located adjacent to Pyramid Lake in the Angeles National Forest. The project involves the installation of a two-mile long water pipeline, upgrades to an existing water tank and fence line, and repairs to existing culverts along the Serrano Beach access road within the Pyramid Lake recreation area. Michael contributed to the Phase I cultural resources study technical report.

Appendix B
NAHC SLF Results

DRAFT

550 West C Street
Suite 750
San Diego, CA 92101
619.719.4200 phone
619.719.4201 fax

www.esassoc.com

February 7, 2017

Native American Heritage Commission
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
FAX- 916-373-5471

Subject: **SLF search request for the Bonsall High School Project (D160855.00)**

To whom it may concern:

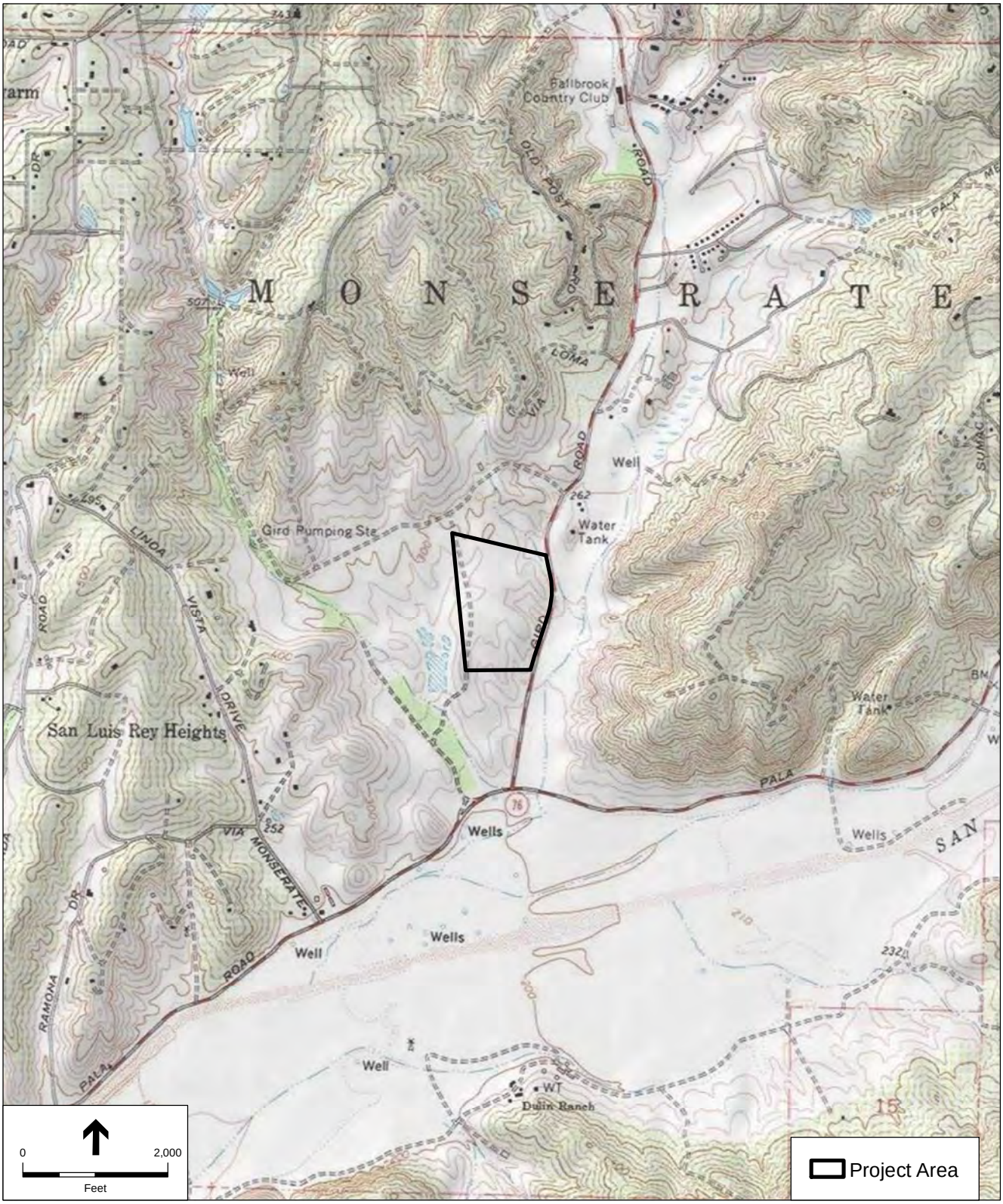
Bonsall Unified School District (BUSD) has retained Environmental Science Associates (ESA) to prepare California Environmental Quality Act (CEQA) documentation that will either be a Mitigated Negative Declaration (MND) or an Environmental Impact Report (EIR) for the proposed Bonsall High School Project (Project). The proposed high school is envisioned to accommodate 1,500 students in grades 9-12 and 50-60 district staff. The high school is proposed to include 150,000 square feet of building space for classrooms, administrative offices, and a performing arts center and will be constructed in phases. The Project located west of Gird Road and north of State Route (SR) 76 in the city of Bonsall. The enclosed map shows the Project area located within an unsectioned portion of Township 10 South, Range 3 West, on the Bonsall 7.5-minute USGS topographic quadrangle

In an effort to provide an adequate appraisal of all potential impacts that may result from the proposed Project, ESA is requesting that a Sacred Lands File search be conducted for sacred lands or traditional cultural properties that may exist within the Project area. We additionally request the names and contact information for Native American representatives who are associated with the Project area so that we may provide these individuals with information regarding the Project.

Thank you for your time and cooperation regarding this matter. To expedite the delivery of search results, please e-mail them to mvader@esassoc.com, or fax them to 619.719.4201. Please contact me at 619.241.9238 or e-mail me at mvader@esassoc.com if you have any questions.

Sincerely,

Michael Vader
Cultural Resources



Topo Map: Bonsall 7.5-minute Quad

Bonsall USD. 160855

Figure 1

Records Search

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 FAX

February 9, 2017

Michael Vader
Environmental Science Associates

Sent by E-mail: mvader@esassoc.com

RE: Proposed Bonsall High School Project, City of Bonsall; Bonsall USGS Quadrangle, San Diego County, California

Dear Mr. Vader:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties. Please note that the intent of the reference codes below is to avoid or mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects under AB-52.

As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 **require public agencies** to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

> **Within 14 days** of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.3.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.3.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
   - If the probability is low, moderate, or high that cultural resources are located in the APE.
   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
   - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measurers.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. A search of the SFL was completed for the project with negative results however the area is sensitive for cultural resources.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand well help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
for Associate Governmental Program Analyst

Native American Heritage Commission
Tribal Consultation List
San Diego County
2/10/2017

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264 — Luiseno
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Barona Group of the Capitan Grande
Clifford LaChappa, Chairperson
1095 Barona Road — Kumeyaay
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
cloyd@barona-nsn.gov

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Kumeyaay
Campo, CA, 91906
Phone: (619)478-9046
Fax: (619)478-5818
rgoff@campo-nsn.gov

Ewilaapaayp Tribal Office
Robert Pinto, Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619)445-6315
Fax: (619)445-9126

Ewiiaapaayp Tribal Office
Michael Garcia, Vice Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Ilpay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130 — Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760)765-0845
Fax: (760)765-0320

Inaja Band of Mission Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. — Kumeyaay
Escondido, CA, 92025
Phone: (760)737-7628
Fax: (760)747-8568

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Kumeyaay
Jamul, CA, 91935
Phone: (619)669-4785
Fax: (619)669-4817

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 — Kumeyaay
Pine Valley, CA, 91962 — Kumeyaay
Phone: (619)709-4207

La Jolla Band of Luiseno Indians
Thomas Rodriguez, Chairperson
22000 Highway 76 — Luiseno
Pauma Valley, CA, 92061
Phone: (760)742-3771

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619)478-2113
Fax: (619)478-2125
LP13boots@aol.com

La Posta Band of Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Bonsall High School Project, San Diego County.

Native American Heritage Commission
Tribal Consultation List
San Diego County
2/10/2017

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

Mesa Grande Band of Mission Indians
Virgil Oyos, Chairperson
P.O Box 270 — Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760)782-3818
Fax: (760)782-9092
mesagrandeband@msn.com

Pala Band of Mission Indians
Robert Smith, Chairperson
12196 Pala Mission Road — Cupeno, Luiseno
Pala, CA, 92059
Phone: (760) 891 - 3500
Fax: (760) 742-3189
rsmith@palatribe.com

Pauma Band of Luiseno Indians - Pauma & Yuima Reservation
Temet Aguilar, Chairperson
P.O. Box 369, Ext. 303 — Luiseno
Pauma Valley, CA, 92061
Phone: (760)742-1289
Fax: (760)742-3422

Pechanga Band of Mission Indians
Mark Macarro, Chairperson
P.O. Box 1477 — Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6000
Fax: (951) 695-1778
striplett@pechanga-nsn.gov

Rincon Band of Mission Indians
Jim McPherson, Tribal Historic Preservation Officer
1 West Tribal Road — Luiseno
Valley Center, CA, 92082
Phone: (760)749-1051
Fax: (760)749-5144
vwhipple@rincontribe.org

Rincon Band of Mission Indians
Bo Mazzetti, Chairperson
1 West Tribal Road — Luiseno
Valley Center, CA, 92082
Phone: (760)749-1051
Fax: (760)749-5144
bomazzetti@aol.com

San Luis Rey Band of Mission Indians
San Luis Rey, Tribal Council
1889 Sunset Drive — Luiseno
Vista, CA, 92081
Phone: (760)724-8505
Fax: (760)724-2172
cjmojado@slrmissionindians.org

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
P.O. Box 365 — Kumeyaay
Valley Center, CA, 92082
Phone: (760)749-3200
Fax: (760)749-3876
allenl@sanpasqualtribe.org

Soboba Band of Luiseno Indians
Rosemary Morillo, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92583 — Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
rmorillo@soboba-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Bonsall High School Project, San Diego County.

Native American Heritage Commission
Tribal Consultation List
San Diego County
2/10/2017

Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619)445-2613
Fax: (619)445-1927
ssilva@sycuan-nsn.gov

Viejas Band of Kumeyaay Indians
Robert J. Welch, Chairperson
1 Viejas Grade Road — Kumeyaay
Alpine, CA, 91901
Phone: (619)445-3810
Fax: (619)445-5337
jhagen@viejas-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Bonsall High School Project, San Diego County.

Appendix C
DPR 523 Forms

DRAFT

***Recorded by:** Michael Vader
ESA
626 Wilshire Blvd Ste 1100
Los Angeles, CA 90017

***Date:** February 15, 2017
☐ Continuation ■ Update

An approximate 0.34-mile long segment resource P-37-028136 was documented by Environmental Science Associates (ESA) as a result of a Phase 1 cultural resources survey of Assessor Parcel Number 124-340-3400 located in the city of Bonsall, approximately 0.30 miles north of the intersection of State Route 76 and Gird Road. The resource is located along the eastern margin of the parcel and was found to match its previous description: a two-lane, paved road, measuring approximately 30 feet wide (Gregory and Bowden-Renna, 2006). The resource has been previously described as having poor integrity due to the fact that it has been realigned and paved since its original construction prior to 1901, and it is no longer able to convey its historic identity (Gregory and Bowden-Renna, 2006). ESA concurs with this conclusion.

A15. References (Documents, informants, maps, and other references):

Gregory, C. and C. Bowden-Renna

2006 *Primary record for P-37-028136*, on file at the South Coastal Information Center, San Diego State University, San Diego, CA.

State of California- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

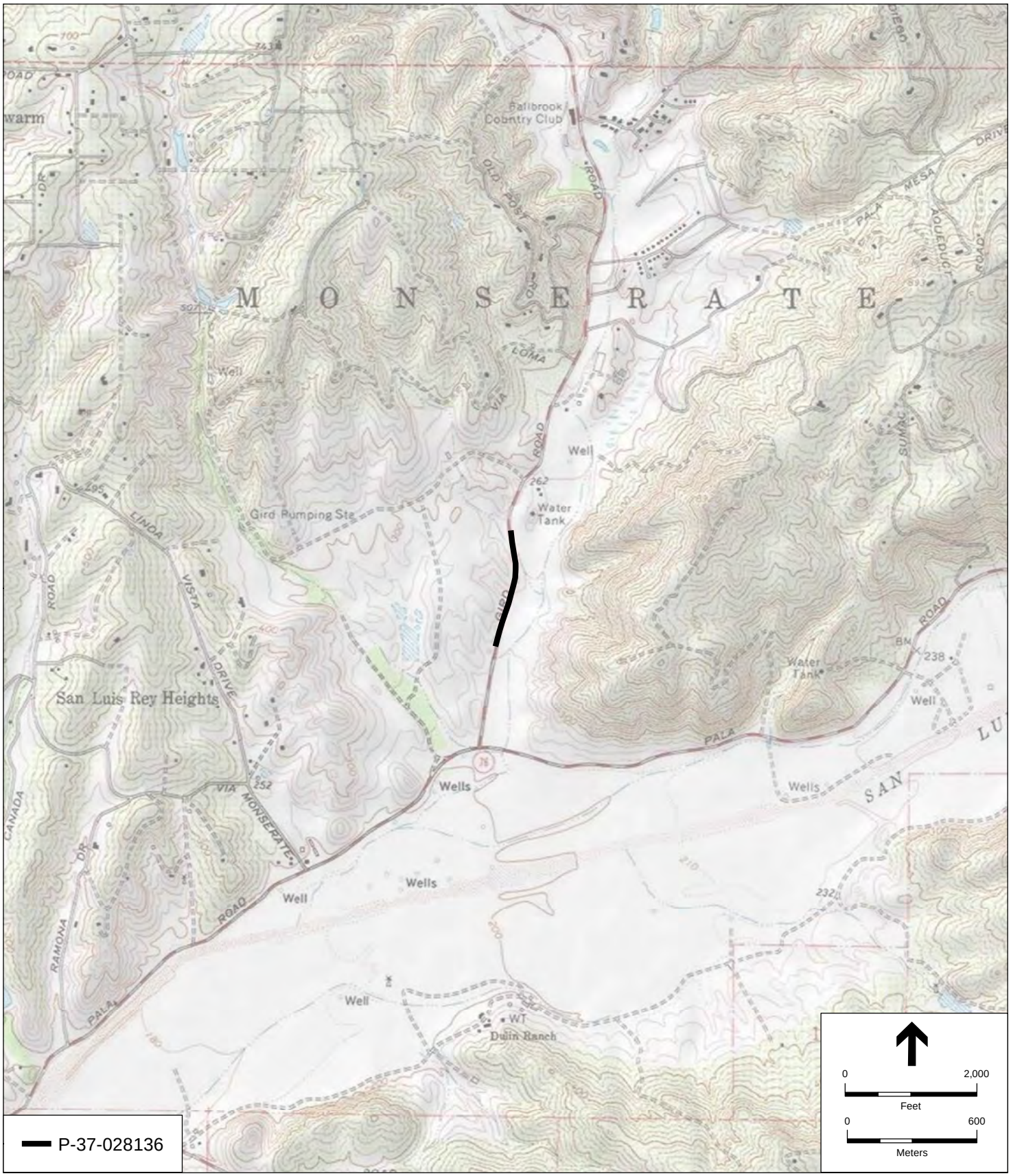
Primary # P-37-028136
HRI #
Trinomial

* Resource Name or Number: P-37-028136 Update

*Map name: Bonsall

*Scale: 1:24000

*Date of Map: 1968



State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # P-37-028136
HRI #
Trinomial
NRHP Status Code
Other Listings
Review Code _____ Reviewer _____ Date _____

*Resource Name or #: (Assigned by recorder) CG-SR76-2006-3

P1. Other Identifier: Segment of Gird Road
*P2. Location: ☐ Not for Publication ☒ Unrestricted *a. County San Diego
and P2c, P2e, and P2b or P2d. (Attach Location Map as necessary.)
*b.USGS 7.5' Quad Bonsall, Calif. Date 1968, Photoinspected 1975; T 10S; R 3W: Unsectioned B.M. SB
c. Address City Zip
d. UTM: (Give more than one for large and/or linear resources) Zone: 11; A: 481926 mE/ 3686216 mN; B: 481904 mE/ 3686060 mN
*e. Other Locational Data: (E.g., parcel #, directions to resource, elevation, etc., as appropriate.) From Interstate 15, head west 2.6 miles on State Route (SR 76). The segment is at the intersection of SR 76 and Gird Road and north along Gird Road.

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries.)
The resource is a 0.1-mile segment of Gird Road, once a historic travel route north to Fallbrook. Located on the north side of the San Luis Rey River, the road dates back to pre-1901. By 1942, it was a paved road called Live Oak Park Road. By 1968, Live Oak Road had become Gird Road.

*P3b. Resource Attributes: (See attributes and codes) HP37. road/route
*P4. Resources Present: ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5b. Description of Photo: (View, date, accession #) South, 10/10/2006, CBR-2006-MR47

*P6. Date Constructed / Age and Sources: ☒ Historic ☐ Prehistoric ☐ Both
early-19th century (ca. 1901); see Continuation Sheet for sources

*P7. Owner and Address:
County of San Diego
5201 Ruffin Road, Suite B
San Diego, California 92123

*P8. Recorded by: (Name, affiliation, and address) C. Gregory and C. Bowden-Renna
EDAW, Inc.
1420 Kettner Boulevard, Suite 620
San Diego, California 92101

*P9. Date Recorded: 08/29/2006

*P10. Survey Type: (Describe) Intensive pedestrian survey

*P11. Report Citation: (Cite Survey report and other sources, or enter "none.") Shalom, D. 2006. *Archaeological Survey Report for the State Route 76 East Widening, San Diego County, California*. Prepared for SANDAG. Prepared by EDAW, Inc. San Diego.

*Attachments: ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☐ Building, Structure, and Object Record ☒ Linear Resource Record ☐ Archaeological Record ☐ District Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (List)

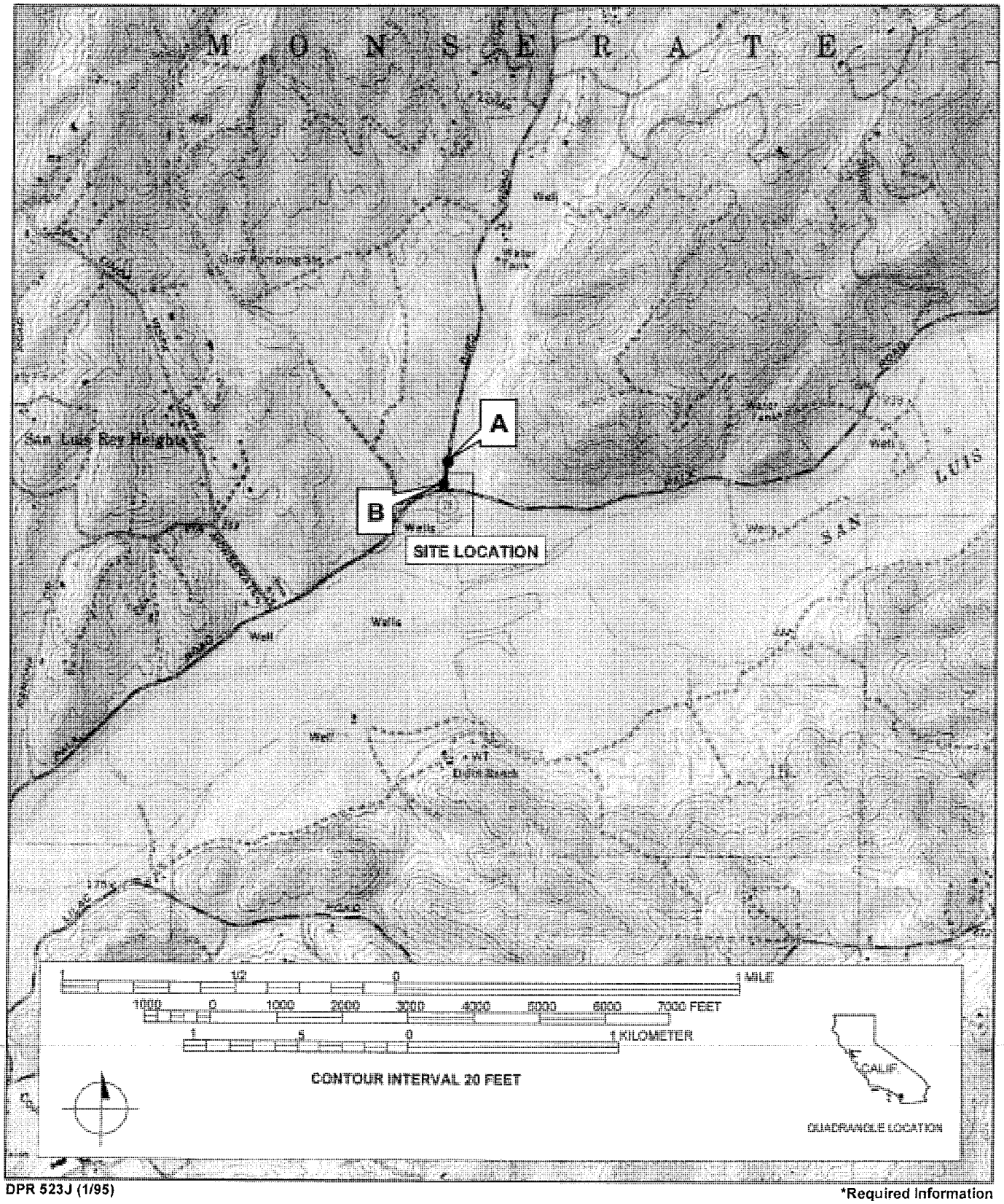
State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # P-37-028136
HRI #
Trinomial

Page 2 of 4 * Resource Name or # (Assigned by recorder) CG-SR76-2006-3

* Map Name: Bonsall, Calif. 7.5' Quadrangle * Scale: 1:24,000 * Date of Map: 1975



DPR 523J (1/95)

*Required Information

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LINEAR FEATURE RECORD

Primary # P-37-028136
HRI #
Trinomial

*Resource Name or #: (Assigned by recorder) CG-SR76-2006-3

L1. **Historic and/or Common Name:** Segment of Gird Road

L2a. **Portion Described:** ☐ Entire Resource ☒ Segment ☐ Point Observation **Designation:**

b. **Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map) The recorded segment of the road is on the north side of the San Luis Rey River. UTM coordinates are as follows. Zone: 11; Northern end of the segment (A): 481926 mE/ 3686216 mN; Southern end of the segment (B): 481904 mE/ 3686060 mN.

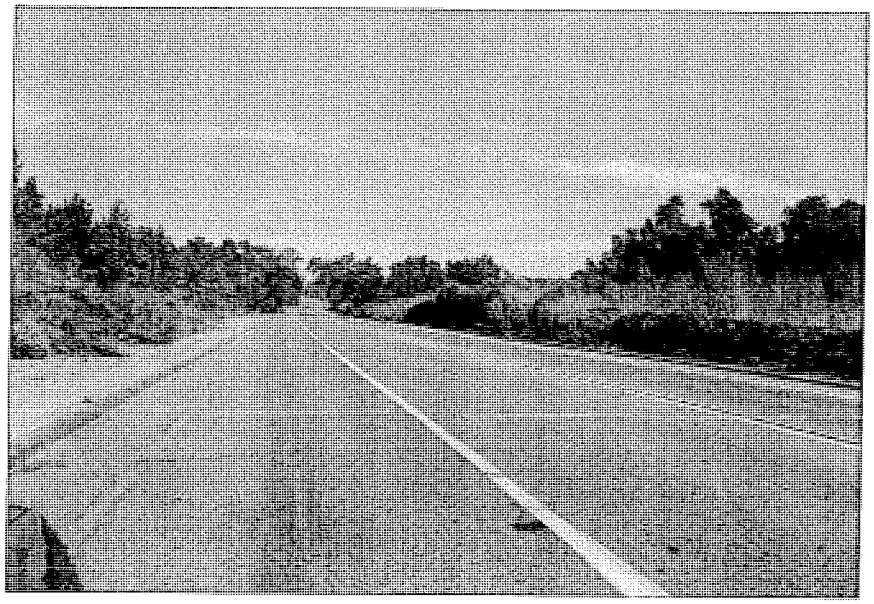
L3. **Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
The segment is a portion of Gird Road, at the intersection of SR 76.

L4. **Dimensions:** (In feet for historic features and meters for prehistoric features)
a. **Top Width** varies
b. **Bottom Width** varies
c. **Height or Depth** N/A
d. **Length of Segment** 0.1 mile

L5. **Associated Resources:** None noted.

L6. **Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The resource is located within the San Luis Rey River valley. The river runs northeast to southwest and is surrounded by low hills cut by perennial tributaries. The road is on the northern edge of the river's floodplain. The vegetation includes riparian woodland and mixed chaparral. To the west is a developed golf course.

L7. **Integrity Considerations:** The historic route has poor integrity, as it does not retain the essential physical features that enable it to convey its historic identity. The route is along the northern edge of the San Luis Rey River floodplain. The route was designed to move people and goods north from the San Luis Rey River to the Fallbrook area and farther north. The road appears to have been realigned over time, based on historic maps.



L8b. **Describe of Photo, Map, or Drawing** (View, scale, etc.)
North, 10/10/2006, CBR-2006-DR048

L9. **Remarks:**

L10. **Form Prepared by:** (Name, affiliation, and address)
C. Gregory and C. Bowden-Renna
EDAW, Inc.
1420 Kettner Boulevard, Suite 620
San Diego, California 92101

L11. **Date:** 10/10/2006

Archival Research

1901 United States Geological Survey (USGS) Map of San Luis Rey, California. Reprinted by 29th Engineer Reproduction Plant, Portland, Oregon in 1942.

This map, created by R. U. Goode from surveys conducted in 1891 and 1898, shows the road as a good travel route on the north side of the San Luis Rey River, heading north from the San Luis Rey River area.

1928 Aerial Photographs of San Luis River valley. On file at the Department of Planning and Land Use, County of San Diego, California.

These photographs show a well-traveled dirt road in the vicinity of this travel route.

1942 United States Geological Survey (USGS) Map of San Luis Rey, California. Printed by 29th Engineer Reproduction Plant, Portland, Oregon.

This map, prepared under the direction of the Chief of Engineers, U. S. Army from surveys conducted between 1933-1942, shows the travel route on the north side of the San Luis Rey River as a secondary, hard, all-weather road.

1948 United States Geological Survey (USGS) Map of San Luis Rey, California.

This map, prepared, edited, and published by the U.S. Geological Survey, U.S. Coastal & Geodetic Survey, and the U. S. Army, was compiled from surveys conducted between 1933-1942 and aerial photographs taken in 1946 and field checked in 1948, shows the historic road on the north side of the San Luis Rey River as improved.

Appendix L

Energy Consumption Worksheets

ESA

Energy Appendix

1 Construction Calculations
2 Operational Calculations

Energy Appendix

1. Construction Calculations

Bonsall New High School
Construction Energy Analysis

Annual Fuel Summary

	Heavy-Duty Construction Equipment
105,410	Total Project Consumption
26,352	Annual Consumption
	Haul Trucks
-	Total Project Consumption
-	Annual Consumption
	Vendor Trucks
92,478	Total Project Consumption
23,120	Annual Consumption
	Workers
44,179	Total Project Consumption
11,045	Annual Consumption
92,478	Project Consumption of diesel for Haul Trucks and Vendors
23,120	Annual Consumption
197,888	Total Gallons Diesel
44,179	Total Gallons Gasoline

4.0 Estimated Project Construction Duration (years)

49,472 Annual Average Gallons Diesel
11,045 Annual Average Gallons Gasoline

State Transportation Sector		Percent of State Transportation Sector
Fuel Type	**Gallons**	
Gasoline	14,400,000,000	0.0001%
Diesel	3,400,000,000	0.0007%
	-	

Bonsall New High School
Construction Energy Analysis

Off-Road Equipment

Equipment ≤ 50 hp		
pounds fuel/hp-hr (OFFROAD2011 model, ≤ 50 hp):	0.408	lb/hp-hr
diesel pounds/gallon (CARB density assumption):	7.07	lb/gal
diesel gallons/hp-hr:	0.0577	gal/hp-hr
0	-	hp-hr
Total diesel gallons:	-	gal
Equipment > 50 hp		
pounds fuel/hp-hr (OFFROAD2011 model, > 50 hp):	0.367	lb/hp-hr
diesel pounds/gallon (CARB density assumption):	7.07	lb/gal
diesel gallons/hp-hr:	0.0519	gal/hp-hr
0	2,030,643	hp-hr
Total diesel gallons:	105,410	gal
Total diesel gallons (off-road equipment):	**105,410**	**gal**

Phase	Year	Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
1	2019	Grading	Excavators	1.6	8	158	0.38	87	66,861
1	2019	Grading	Graders	0.8	8	187	0.41	87	42,690
1	2019	Grading	Rubber Tired Dozers	0.8	8	247	0.4	87	55,012
1	2019	Grading	Scrapers	1.6	8	367	0.48	87	196,172
1	2019	Grading	Tractors/Loaders/Backhoes	1.6	8	97	0.37	87	39,967
1	2020	Grading	Excavators	1.6	8	158	0.38	23	17,676
1	2020	Grading	Graders	0.8	8	187	0.41	23	11,286
1	2020	Grading	Rubber Tired Dozers	0.8	8	247	0.4	23	14,543
1	2020	Grading	Scrapers	1.6	8	367	0.48	23	51,862
1	2020	Grading	Tractors/Loaders/Backhoes	1.6	8	97	0.37	23	10,566
1	2020	Building Construction	Cranes	0.9	7	231	0.29	239	100,867
1	2020	Building Construction	Forklifts	2.8	8	89	0.2	239	95,294
1	2020	Building Construction	Generator Sets	0.9	8	84	0.74	239	106,965
1	2020	Building Construction	Tractors/Loaders/Backhoes	1.6	7	97	0.37	239	96,070
1	2020	Building Construction	Welders	2.8	8	85	0.78	239	354,944
1	2020	Architectural Coating	Air Compressors	0.1	6	78	0.48	20	449
1	2020	Paving	Pavers	0.2	8	130	0.42	20	1,747
1	2020	Paving	Paving Equipment	0.1	8	132	0.36	20	760
1	2020	Paving	Rollers	0.2	8	80	0.38	20	973
2	2023	Building Construction	Cranes	1	7	231	0.29	260	121,922
2	2023	Building Construction	Forklifts	3	8	89	0.2	260	111,072
2	2023	Building Construction	Generator Sets	1	8	84	0.74	260	129,293
2	2023	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	260	195,959
2	2023	Building Construction	Welders	1	8	85	0.78	260	137,904
2	2023	Paving	Pavers	0.2	8	130	0.42	35	3,058
2	2023	Paving	Paving Equipment	0.2	8	132	0.36	35	2,661
2	2023	Paving	Rollers	0.2	8	80	0.38	35	1,702
2	2023	Architectural Coating	Air Compressors	0.1	6	78	0.48	12	270
2	2024	Building Construction	Cranes	1	7	231	0.29	23	10,785
2	2024	Building Construction	Forklifts	3	8	89	0.2	23	9,826
2	2024	Building Construction	Generator Sets	1	8	84	0.74	23	11,437
2	2024	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	23	17,335
2	2024	Building Construction	Welders	1	8	85	0.78	23	12,199
2	2024	Architectural Coating	Air Compressors	0.1	6	78	0.48	23	517
									2,030,643

Bonsall New High School
Construction Energy Analysis

On-Road Vendor Trucks

			miles/gallon
EMFAC2014 Diesel Fuel Consumption Factor:[1]	0.1569	gallons/mile	6.4
Total Vendor Truck VMT:	557,625	miles	
Total VMT diesel gallons (on-road vendor trucks):	**87,485**		
			Estimated Fuel Savings from
EMFAC2014 Diesel Fuel Consumption Factor:[2]	0.7844	gallons/hour	*Anti-Idling Regulation (64 percent based on*
Total Haul Truck Idle-Hours per Year:	6,366	hours	*estimated CARB emissions reductions):* [3]
Total Idling diesel gallons (on-road haul trucks):	**4,993**		*13,871*
Total diesel gallons (on-road haul trucks):	**92,478**	gal	

1. California Air Resources Board, EMFAC2014 (San Diego Air Basin; HHDT and MHDT; Annual; CY 2019; Aggregate MY; Aggregate Speed)
2. California Air Resources Board, EMFAC2014 (South Coast Air Basin; HHDT and MHDT; Annual; CY 2017; Aggregate MY; 5 miles per hour converted to hourly rate)
3. Source: California Air Resources Board (CARB), 2004. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling, Appendix F, July 2004, https://www.arb.ca.gov/regact/idling/idling.htm, accessed November 2016.

Phase	Days	Trips/Day	Miles/Trip	VMT	Idle Hours
Phase 1 Grading (2019)	87	0	7.3	-	-
Phase 1 Grading (2020)	23	0	7.3	-	-
Phase 1 Building Construction (2020)	239	97	7.3	169,236	1,932
Phase 1 Paving (2020)	20	0	7.3	-	-
Phase 1 Architectural Coating (2020)	20	0	7.3	-	-
Phase 2 Building Construction (2023)	260	188	7.3	356,824	4,073
Phase 2 Paving (2023)	35	0	7.3	-	-
Phase 2 Architectural Coating (2023)	12	0	7.3	-	-
Phase 2 Building Construction (2024)	23	188	7.3	31,565	360
Phase 2 Architectural Coating (2024)	23	-	7.3	-	-
			Total Vendor Truck VMT:	557,625	
			Total Idle-Hours:		6,366

Bonsall New High School
Construction Energy Analysis

On-Road Workers (LDA, LDT1, LDT2)

EMFAC2014 Gasoline Fuel Consumption Factor:[1]	0.0400	gallons/mile	miles/gallon
Total Worker VMT:	1,103,517	miles	25.0
Total VMT gasoline gallons (workers):	**44,179**		

1. California Air Resources Board, EMFAC2014 (South Coast Air Basin; LDA, LDT1, LDT2; CY 2017; Aggregate MY; Aggregate Speed)

Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Phase 1 Grading (2019)	87	10.0	10.8	9,396
Phase 1 Grading (2020)	23	10	10.8	2,484
Phase 1 Building Construction (2020)	239	124	10.8	320,069
Phase 1 Paving (2020)	20	7.5	10.8	1,620
Phase 1 Architectural Coating (2020)	20	25	10.8	5,400
Phase 2 Building Construction (2023)	260	240.5	10.8	675,324
Phase 2 Paving (2023)	35	30	10.8	11,340
Phase 2 Architectural Coating (2023)	12	48	10.8	6,221
Phase 2 Building Construction (2024)	23	241	10.8	59,740
Phase 2 Architectural Coating (2024)	23	48	10.8	11,923
			Total Worker VMT:	**1,103,517**

EMFAC2014 (v1.0.7) Emissions Inventory
Region Type: Air Basin
Region: San Diego
Calendar Year: 2019
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

VMT	Fuel Consumption (gal/day)	Annual VMT	ıal Fuel Consumption (gals)
2917943	457790	1,065,049,040.50	167,093,302.65
gal/mi			
0.1568879			

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
San Diego	2019	HHDT	Aggregated	Aggregated	DSL	13686.11844	1821180.788	0	324.5928
San Diego	2019	MHDT	Aggregated	Aggregated	DSL	21086.2568	1096761.789	0	133.1971

EMFAC2014 (v1.0.7) Emissions Inventory

Region Type: Air Basin
Region: San Diego
Calendar Year: 2019
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
San Diego	2019	LDA	Aggregated	Aggregated	GAS	1276830	45872559.34	8074649	1675.886
San Diego	2019	LDT1	Aggregated	Aggregated	GAS	115232.8	3589856.429	697020	158.9167
San Diego	2019	LDT2	Aggregated	Aggregated	GAS	422067.8	15178788.42	2661145	753.1182
San Diego	2019	T7 single c	Aggregated	Aggregated	DSL	692.9089	64595.05403	0	10.83883

Haul Trucks (T7 Single Construction)

VMT	Fuel Consumption (gal/day)	Annual VMT	Annual Fuel Consumption
64595	10839	23,577,195	3,956,173

gal/mi
0.1678

Workers (LDA,LDT1, LDT2)

VMT	Fuel Consumption (gal/day)	Annual VMT	Annual Fuel Consumption
64641204	2587921	23,594,039,530	944,591,150

gal/mi
0.0400

Energy Appendix

2. Operational Calculations

Bonsall New High School
Operational Energy Analysis

Energy and VMT Estimates

Source	Natural Gas demand (million kBTU/yr)	Electricity demand (million kWh/yr)	Electricity demand from water demand (million kWh/yr)	Annual Worker and Visitor VMT
High School	0.85	0.89	0.232	4,129,214

	CalEEMod		Total Water Use	Electricity Demand from water Demand
Source	Indoor Water Use (Mgal/yr)	Outdoor Water Use (Mgal/yr)	(Mgal/yr)	(million kWh)
High School	4.229	15.954	20.183	0.232

CalEEMod Water Electricity Factors	Electricity Intensity Factor To Supply (kWh/Mgal)	Electricity Intensity Factor To Treat (kWh/Mgal)	Electricity Intensity Factor To Distribute (kWh/Mgal)	Electricity Intensity Factor For Wastewater Treatment (kWh/Mgal)
High School	9727	111	1272	1911

Source: California Emissions Estimator Model (CalEEMod).

Bonsall New High School
Operational Energy Analysis

Fuel Usage from VMT

Annual VMT (All): 4,129,214 miles/year

(With trip and VMT reductions from land use characteristics and proximity to public transit.)

Fuel Type:[1]	GAS	DSL	ELEC	
Percent:	91.97%	4.02%	4.01%	
Miles per Gallon Fuel:	27.39	8.95	-	
Annual VMT by Fuel Type :	3,797,638	165,994	165,581	miles/year
Annual Fuel Usage :	138,651	18,547	-	gal/year
Annual Fuel Savings from Electric Vehicles:[2]	-	-	6,045	gal/year (assumed to be gasoline)
	6,045	Total Gasoline savings (ELEC)		
Total Annual Fuel Usage	**132,605**	**18,547**	**-**	**gal/year**

Notes:

1. California Air Resources Board, EMFAC2014, San Diego Air Basin; 2025; Annual; All vehicle types; Aggregate model year; Aggregate speed). https://www.arb.ca.gov/emfac/2014/
2. Assumes electric vehicles would replace traditional gasoline-fueled vehicles.

Appendix M
Geotechnical Evaluation

ESA

PRELIMINARY GEOTECHNICAL ENGINEERING AND GEOLOGIC HAZARD REPORT PROPOSED HIGH SCHOOL – GIRD ROAD PROPERTY, APN: 124-340-34-00 FALLBROOK AREA, SAN DIEGO COUNTY, CALIFORNIA

Prepared for

BONSALL UNIFIED SCHOOL DISTRICT
31505 Old River Road
Bonsall, California 92003

Project No. 11279.001

April 22, 2016

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

April 22, 2016

Project No. 11279.001

Bonsall Unified School District
31505 Old River Road
Bonsall, California 92003

Attention: Mr. David Metcalf, Director of Facilities, Maintenance and Transportation

Subject: Preliminary Geotechnical Engineering and Geologic Hazard Report
Proposed High School – Gird Road Property, APN: 124-340-34-00
Bonsall Unified School District
Fallbrook Area, San Diego County, California

In accordance with your request and authorization, we have performed a geotechnical engineering and geologic hazards report for the proposed High School located on the west side of Gird Road approximately 1700 feet north west of the intersection of Pala Road (Highway 76) and Gird Road, APN: 124-340-34-00, in the Fallbrook area of San Diego County, California. This report summarizes our geotechnical findings, conclusions and recommendations regarding the proposed improvements. Based on the results of our exploration, it is our opinion that the site is suitable for the proposed improvements provided the recommendations included in this report are implemented during design and construction phases of development. Once site development/project plans become available, an update geologic hazard report should be prepared to comply with the California Geologic Survey (CGS), Note 48.

If you have any questions regarding this report, please do not hesitate to contact the undersigned. We appreciate this opportunity to be of service on this project.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

Kenneth E. Cox, GE 2793
Senior Project Engineer

PROFESSIONAL ENGINEER
KENNETH EDWIN COX
2793
GEOTECHNICAL
STATE OF CALIFORNIA

Robert F. Riha, CEG 1921
Senior Principal Geologist

REGISTERED GEOLOGIST
ROBERT F. RIHA
No. 1921
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Distribution: (1) Addressee (+ PDF)

41715 Enterprise Circle N., Suite 103 ▪ Temecula, CA 92590-5661
951.296.0530 ▪ Fax 951.296.0534

TABLE OF CONTENTS

Section Page

1.0 INTRODUCTION 1
1.1 Purpose and Scope 1
1.2 Site and Project Description 1
2.0 FIELD EXPLORATION AND LABORATORY TESTING 2
2.1 Field Exploration 2
2.2 Laboratory Testing 2
2.3 Evaluation of Aerial Photographs 2
3.0 GEOTECHNICAL AND GEOLOGIC FINDINGS 3
3.1 Regional Geology 3
3.2 Site Specific Geology 3
3.2.1 Undocumented Fill 3
3.2.2 Young Alluvium 4
3.2.3 Older Alluvium 4
3.3 Groundwater and Surface Water 4
3.4 Regional Faulting and Fault Activity 5
3.5 Ground Shaking 5
3.6 Secondary Seismic Hazards 6
3.6.1 Dynamic Settlement (Liquefaction and Dry Settlement) 6
3.6.2 Lateral Spreading 7
3.6.3 Ground Rupture 7
3.6.4 Seiches, Tsunamis, Inundation Due to Large Water Storage Facilities 7
3.6.5 Rock Falls 7
3.6.6 Slope Stability and Landslides 7
3.6.7 Dam Inundation/Flood Hazard 7
3.6.8 Subsidence 7
3.6.9 Rippability 8
4.0 CONCLUSIONS AND RECOMMENDATIONS 9
4.1 General 9
4.2 Earthwork 9
4.2.1 Site Preparation and Remedial Grading 9
4.2.2 Suitability of Site Soils for Fills 10
4.2.3 Import Soils 10
4.2.4 Utility Trenches 11
4.2.5 Shrinkage 11
4.2.6 Drainage 12
4.2.7 Slope Design and Construction 12
4.3 Foundation Design 13
4.3.1 Design Parameters – Spread/Continuous Shallow Footings 13
4.3.2 Settlement Estimates 14
4.4 Retaining Walls 14

4.5 Vapor Retarder 15
4.6 Footing Setbacks 16
4.7 Sulfate Attack 16
4.8 Preliminary Pavement Design 16
5.0 GEOTECHNICAL CONSTRUCTION SERVICES 19
6.0 LIMITATIONS 20
REFERENCES 21

Accompanying Tables, Figures, Plates and Appendices

Tables

Table 1. Major Quakes (>5.5 Mw) in the last 150 years 5
Table 2. 2013 CBC Seismic Coefficients 6
Table 3. Retaining Wall Design Earth Pressures (Static, Drained) 14
Table 4. Preliminary Asphalt Pavement Sections 17

Figures (end of text)

Figure 1 – Site Location Map
Figure 2 – Regional Geology Map
Figure 3 – Regional fault Map
Figure 4 – Flood Hazard Zone Map
Figure 5 – Seismic Hazard Zone Map
Figure 6 – Dam Inundation Zone Map

Plate

Plate 1 – Geotechnical Map

Appendices

Appendix A – Logs of Exploratory Borings
Appendix B – Results of Geotechnical Laboratory Testing
Appendix C – Site-Specific Seismic and Settlement Analysis
Appendix D – Earthwork and Grading Specifications

1.0 INTRODUCTION

1.1 Purpose and Scope

This geotechnical engineering and geologic hazards report is for the proposed new High School, located approximately 1700 feet northwest of the intersection of Pala Road (Highway 76) and Gird Road (APN: 124-340-34-00), Fallbrook Area, San Diego County, California (*see Figure 1, Site Location Map*). Our scope of services included the following:

- Review of available site-specific geologic information listed in the references at the end of this report.
- A site reconnaissance and excavation of ten (10) geotechnical borings. Approximate locations of these exploratory borings are depicted on Plate 1.
- Geotechnical laboratory testing of selected soil samples obtained from this exploration. Test procedures and results are presented in Appendix B.
- Geotechnical engineering analyses performed or as directed by a California registered Geotechnical Engineer (GE) and reviewed by a California Certified Engineering Geologist (CEG).
- Preparation of this report which presents our geotechnical conclusions and recommendations regarding the proposed structures.

This report is not intended to be used as an environmental assessment (Phase I or other), or foundation and/or grading plan review.

1.2 Site and Project Description

The proposed High School (Gird Road) site is approximately 50 acres of vacant land located approximately 1700 feet northwest of the intersection of Pala Road (Highway 76) and Gird Road in the Fallbrook area of San Diego County, California (See Figure 1). The site coordinates are 33.3221˚ N Latitude and 117.1960˚ W Longitude and APN: 124-340-34-00. While a grading plan is not available, we anticipate moderate site grading, with cuts and fills on the order of ± 30 feet to achieve finished grades, plus proposed remedial grading.

2.0 FIELD EXPLORATION AND LABORATORY TESTING

2.1 Field Exploration

Our field exploration for the proposed high school consisted of the excavation of ten exploratory borings within accessible areas of the site to provide basis for preliminary ground preparation and foundation design of the proposed campus. During excavation, in-situ undisturbed (Cal Ring) and disturbed/bulk samples were collected from the exploration borings for further laboratory testing and evaluation. Approximate locations of these exploratory borings are depicted on the *Boring Location Plan* (Geotechnical Map, Plate 1). Sampling was conducted by a staff geologist/engineer from our firm. After logging and sampling, the excavations were loosely backfilled with spoils generated during excavation and bentonite chips in borings which encountered groundwater. The exploration logs are included in Appendix A.

2.2 Laboratory Testing

Laboratory tests were performed on representative bulk samples to provide a basis for development of remedial earthwork and geotechnical design parameters. Selected samples were tested to determine the following parameters: maximum dry density and optimum moisture, particle size, expansion index, swell or collapse potential, in-situ moisture and density, potential of hydrogen (pH), electrical resistivity, and water-soluble sulfate and chloride content. The results of our laboratory testing are presented in Appendix B.

2.3 Evaluation of Aerial Photographs

A detailed review of vertical, sequential, stereo aerial photograph pairs was conducted using a magnified stereoscope to identify possible geomorphic evidence of landslide and faulting. Various aerial photos taken between 1972 and 1998 were reviewed. A listing of photographs is presented at the end of References, before Appendix A. Geomorphic features contained in the historic photos were enhanced through the use of a magnifying stereoscope. No indications of landslide, slope instability or faulting were observed.

3.0 GEOTECHNICAL AND GEOLOGIC FINDINGS

3.1 Regional Geology

The project site is located within the Peninsular Ranges Province, which is characterized by northwest trending elongated mountain ranges and valleys. The Peninsular Ranges Province is divided into three major fault bounded tectonic blocks within the San Andreas Fault System, which consist of (from west to east): Santa Ana, Perris, and San Jacinto Blocks. The study area is located within the coastal subprovince of the Peninsular Ranges Geomorphic Province, near the western edge of the southern California batholith. The topography at the edge of the batholith changes from the rugged landforms developed on the batholith to the more subdued landforms, similar to those of the softer sedimentary formations of the coastal plain. Weathering, erosion and regional tectonic uplift created the valleys and ridges of the area. The ranges are tectonically and seismically active and include parts of four major northwest-striking, right-lateral strike slip Pacific and North American plate boundary fault zones. These include the Elsinore fault zone to the east, the Newport-Inglewood-Rose Canyon offshore fault zone on the west and the Coronado Bank fault and San Diego Trough fault zone to the southwest.

As mapped by the USGS (2005), the natural geologic units on the subject property include; young alluvial deposits and older alluvial flood-plain deposits as depicted on the *Regional Geologic Map*, (Figure 2).

3.2 Site Specific Geology

Our field exploration, observations, and review of the pertinent literature indicate that the site is underlain by young alluvial and older alluvial materials at depth. A relatively thin veneer of topsoil fill mantles the site. Undocumented fill soil was encountered within boring LB-1 and may be present at other areas across the site. The following is a summary of the geologic conditions based on our exploratory borings and test pits. These units are discussed in the following sections.

3.2.1 Undocumented Fill

Approximately 2.5 feet of undocumented fill soil was encountered in boring LB-1 located in the northeast portion of the site. As encountered, the fill soil consisted of moist, silty sand. Undocumented fill was not encountered in the remainder of our geotechnical borings; however areas of undocumented fill may be present throughout the site. This unit is not considered suitable for the support of structures or engineered fill and should be removed and recompacted in accordance with the recommendations of this report.

3.2.2 Young Alluvium

Quaternary-age young alluvial soils were encountered in our borings located in the lower elevation portions of the site (LB-1, LB-3, LB-5 and LB-10) to depths ranging from 5.0 feet (LB-5) to the maximum depth of exploration, 51.5 feet, (LB-1) below ground surface (BGS). As encountered, these alluvial soils consist of dry to wet, loose to dense, silty sands and sandy clays with varying amounts of gravel.

- ***Relative Density***: The alluvium is generally loose to medium dense in the upper 10 to 15 feet in most areas with an average N-value on the order of 5 to 15 blows/foot. At depths greater than 15 feet, the alluvium is generally medium dense with an average N-value on the order of 10 to 25. Based on the results of the laboratory testing on representative samples, the relative density/compaction of the upper 10 feet of alluvium varies from 75 percent to 90 percent as calculated per ASTM Method 1557.
- ***Expansion Potential***: The results of the laboratory testing on representative samples indicate that these materials are expected to possess very low to medium expansion potential (EI<90). The more expansive soils (EI>51) are expected to be localized and associated with interbedded silt and clay layers at depth greater than 10 feet.
- ***Collapse Potential:*** The 'hydro-collapse' potential was evaluated in the laboratory on representative soil samples in accordance with the consolidation test procedure per ASTM D4546. The test specimens were inundated with water at confining pressures of 2 kips per square-foot, approximating those pressures that may be exerted after completion of grading. The test results indicate that the potential for "hydro-collapse" is generally lower than 2 percent (low trouble) in the upper 15 feet.

3.2.3 Older Alluvium

Older alluvium was encountered in our borings located in higher elevations of the site (LB-2, LB-4, LB-6, LB-7, LB-8 and LB-9) and beneath the young alluvium in two of our borings in the lower elevations areas (LB-4 and LB-10) at depths of approximately 5 and 10 feet BGS, respectively. According to USGS maps, this unit is comprised of older alluvial flood plain deposits. This formation appears to be slightly weathered within the depth explored and consisted of dense to very dense, silty sand with varying amounts of gravel. The results of the laboratory testing on representative samples indicate that these materials are expected to possess very low to medium expansion potential (EI<90).

3.3 Groundwater and Surface Water

No standing or surface water was observed on the site at the time of our field exploration. Groundwater was encountered during this investigation at a depth of

28.2 feet (EL ~ 237) in LB-1 and 10.5 feet (EL ~ 230) in LB-3. Historic groundwater data, as indicated on the Department of Water Resources website for well number 333156N1171969W001, located approximately ¼ mile southwest of the site adjacent the San Luis Rey River, reflect a maximum groundwater elevation of 203 feet (about 11 feet deep) in July 2012.

3.4 Regional Faulting and Fault Activity

The subject site, like the rest of Southern California, is located within a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. The principal source of seismic activity is movement along the northwest-trending regional fault systems such as the San Andreas, San Jacinto, and Elsinore Fault Zones. Based on published geologic maps, this site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone (see Figure 3). The nearest known active fault is the Temecula Segment of the Elsinore Fault Zone located approximately 10 miles northeast of the site. The Julian Segment of the Elsinore Fault Zone is located approximately 11 miles east of the site. Major quakes (>5.5 Mw) within 30 miles of the site in the last 150 years (per CGS and USGS Websites, April 2016), is presented in table below:

Table 1. Major Quakes (>5.5 Mw) in the last 150 years

Date	Moment Magnitude (Mw)	Approx. Distance from Site (mi)	General Location
1885-09-13	5.8	17	Rincon
1910-05-15	6.0	29	Lake Elsinore

3.5 Ground Shaking

The seismic coefficients provided below are based on an interactive tool/program available on USGS website (version 3.1.0, last updated July 2013). Based on ASCE 7 as the Design Code Reference Document and site Class D, the seismic coefficients for this site are as listed in the following table:

Table 2. 2013 CBC Seismic Coefficients

CBC Categorization/Coefficient	Value
Site Longitude (decimal degrees)	-117.1960
Site Latitude (decimal degrees)	33.3221
Site Class Definition	D
Mapped Spectral Response Acceleration at 0.2s Period, S_s	1.171 g
Mapped Spectral Response Acceleration at 1s Period, S_1	0.456 g
Short Period Site Coefficient at 0.2s Period, F_a	1.031
Long Period Site Coefficient at 1s Period, F_v	1.544
Adjusted Spectral Response Acceleration at 0.2s Period, S_{MS}	1.208 g
Adjusted Spectral Response Acceleration at 1s Period, S_{M1}	0.704 g
Design Spectral Response Acceleration at 0.2s Period, S_{DS}	0.806 g
Design Spectral Response Acceleration at 1s Period, S_{D1}	0.469 g

Since this site is assigned a Seismic Design Category D (S_1<0.75), a site-specific ground motion analysis is not required per CGS Note 48. As such, the above site-specific seismic coefficients following this USGS general procedure presented in Table 1 above should be used in design. The results of this analysis also indicate that the adjusted Peak Ground Acceleration (PGA_M) for this site is 0.465g. The seismic Parameters using the USGS Interactive Deaggregation website indicate a PGA of 0.508g and mean modal magnitude of 7.8 Mw, which were used for the liquefaction analysis. The USGS summary reports are included in Appendix C.

3.6 Secondary Seismic Hazards

Ground shaking can induce "secondary" seismic hazards such as liquefaction, dynamic densification, differential subsidence along ground fissures, seiches and tsunamis, as discussed in the following subsections:

3.6.1 Dynamic Settlement (Liquefaction and Dry Settlement)

Based on County of San Diego Data maps, the property is adjacent a liquefaction susceptibility area (see Figure 5). Liquefaction-induced settlement is considered a geologic hazard at this site due to the presence of shallow groundwater (>50 feet). Additionally, based on our dry-settlement analysis using the peak ground acceleration (0.51g) and moment magnitude of 7.8, the total dynamic settlement resulting from a design level earthquake is expected to be approximately than 2¼ inches on this site. The dynamic-induced differential settlement is expected to be less 1 inch in a 40-foot horizontal distance.

3.6.2 Lateral Spreading

Due to the depth to and thickness of liquefiable layers interbedded with non-liquefiable clay, evaluations based on recommendations by Youd and Garris (1995) indicate that the site is not likely to experience surface manifestations of liquefaction including lateral spreading.

3.6.3 Ground Rupture

Ground rupture is generally considered most likely to occur along pre-existing active (Holocene) faults. Our review of data gathered during this study indicates no sign of through-going (Holocene) faults within the property. As such, the potential of damage due to ground surface-fault-rupture within the property is considered very low.

3.6.4 Seiches, Tsunamis, Inundation Due to Large Water Storage Facilities

Due to the great distance to large bodies of water, the possibility of seiches and tsunamis impacting the site is considered remote. This report does not address conventional flood hazard risk.

3.6.5 Rock Falls

The potential for rock fall due to either erosion or seismic ground shaking is considered non-existent at this site.

3.6.6 Slope Stability and Landslides

Due to the dense granular nature of the site soils and moderate relief across the site, the risk of deep-seated slope failure on this site or adjacent sites is considered very low. The site is not considered susceptible to seismically induced landslides. Additional slope stability analysis of planned slopes should be performed when grading plans become available.

3.6.7 Dam Inundation/Flood Hazard

This report does not address conventional flood hazard risk associated with this site. However, the site is not within a County of San Diego designated 100 year or 500 year Floodplain. The site is not within a County of San Diego Designated Dam Inundation Area; although the Red Mountain Reservoir Dam Inundation Area follows Live Oak Creek approximately 300 east of Gird Road.

3.6.8 Subsidence

Based on the results of our subsurface evaluation and lack of evidence of differential subsidence and associated ground fissuring, we consider the potential for differential subsidence and ground fissuring on this site to be very low.

3.6.9 Rippability

Based on our review of the geotechnical explorations, we anticipate that the older alluvium to be rippable with conventional heavy earth moving equipment in good operating conditions (Caterpillar D8) to the depths explored. If deeper excavations are planned, additional evaluation should be performed.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 General

The proposed high school development appears feasible from a geotechnical viewpoint provided that the following preliminary recommendations are incorporated into the design and construction phases of development. Additional site evaluation should be performed when grading plans and structure locations become available.

4.2 Earthwork

For preliminary design and planning considerations, earthwork should be performed in accordance with the following preliminary recommendations and the *Earthwork and Grading Specifications* included in Appendix D of this report. In case of conflict, the following recommendations should supersede those in Appendix D. The contract between the Owner and the earthwork contractor should be worded such that it is the responsibility of the contractor to place fill properly and in accordance with recommendations presented in this report, including the guide specifications in Appendix D, notwithstanding the testing and observation of the geotechnical consultant.

4.2.1 Site Preparation and Remedial Grading

Prior to grading, the proposed structural improvement areas (i.e. all-structural fill areas, pavement areas, buildings, etc.) of the site should be cleared of surface and subsurface obstructions. Heavy vegetation, roots and debris should be disposed of offsite. Although not anticipated, water wells, septic tanks and cesspools, if encountered, should be removed or abandoned in accordance with the San Diego County Department of Environmental Health guidelines. Voids created by removal of buried material should be backfilled with properly compacted soil in general accordance with the recommendations of this report. Preliminary remedial grading recommendations are provided as follows:

- **Building Footprints:** In planned fill areas underlying proposed buildings, the upper 7 to 10 feet of existing soil (alluvium), or 3 to 5 feet of older alluvium should be removed and compacted. In planned cut areas, the exposed subgrade should be removed/overexcavated a minimum of 3 feet below bottom of footings/slab-on-grade to provide a uniform fill blanket. In addition, all undocumented fill encountered within the proposed building removal areas should be removed and compacted. Over-excavation and recompaction should extend a minimum horizontal distance equal to the depth removed from perimeter edges of proposed buildings. Fill depth differential within a building foot print should not be greater 1/3 the

maximum fill depth. If such a condition is anticipated, it should be mitigated by deepening the overexcavation of shallower fill portion of the building pad. Localized areas of deeper removals/over-excavation may be required depending on the actual conditions encountered pending verification by our field representative during grading to confirm suitable bottom.

- **Non-Building Areas (Flatwork/Pavement/Playfields):** A minimum over-excavation and recompaction of 5-feet below existing grade (alluvium) or 3-feet below proposed subgrade elevation (in cut areas), whichever is deeper, should be performed. The bottom of the removal should be proof-rolled with heavy equipment to identify yielding subgrade conditions (for additional removal, if necessary) under the observation of the geotechnical consultant.

After completion of the recommended removal of existing surficial soil and prior to fill placement, the exposed surface should be scarified to a minimum depth of 8-inches, moisture conditioned as necessary to near optimum moisture content and recompacted using heavy compaction equipment to an unyielding condition. All structural fill within the building footprints should be compacted throughout to 90 percent of the ASTM D 1557 laboratory maximum density, at or slightly above optimum moisture.

4.2.2 Suitability of Site Soils for Fills

Organic rich topsoil and vegetation layers, root zones, and similar surface materials should be striped and stockpiled for either reuse in landscape surface areas or removed from the site. Existing fill, younger alluvium, and older alluvium should be considered suitable for re-use as compacted fills provided the recommendations contained herein are followed. If cobbles/boulders larger than 6-inches in largest diameter and expansive soils (EI>51) are encountered, these materials should not be placed with the upper 5 feet of subgrade soils. Expansive clays have been identified within the anticipated removal depth; therefore, care should be taken during grading to place expansive soil in areas deeper than 5 feet.

4.2.3 Import Soils

Import soils and/or borrow sites, if needed, should be evaluated by us prior to import. Import soils should be uncontaminated, granular in nature, free of organic material (loss on ignition less-than 2 percent), have very low expansion potential (with an Expansion Index less than 21) and have a low corrosion impact to the proposed improvements.

4.2.4 Utility Trenches

Utility trenches should be backfilled with compacted fill in accordance with the *Standard Specifications for Public Works Construction,* ("Greenbook"), 2015 Edition. Fill material above the pipe zone should be placed in lifts not exceeding 8 inches in uncompacted thickness and should be compacted to at least 90 percent relative compaction (ASTM D 1557) by mechanical means only. Site soils may generally be suitable as trench backfill provided these soils are screened of rocks over 1½ inches in diameter and organic matter. The upper 6 inches of backfill in all pavement areas should be compacted to at least 95 percent relative compaction.

Where granular backfill is used in utility trenches adjacent moisture sensitive subgrades and foundation soils, we recommend that a cut-off "plug" of impermeable material be placed in these trenches at the perimeter of buildings, and at pavement edges adjacent to irrigated landscaped areas. A "plug" can consist of a 5-foot long section of clayey soils with more than 35-percent passing the No. 200 sieve, or a Controlled Low Strength Material (CLSM) consisting of one sack of Portland-cement plus one sack of bentonite per cubic-yard of sand. CLSM should generally conform to the *Standard Specifications for Public Works Construction,* ("Greenbook"), 2015 Edition. This is intended to reduce the likelihood of water permeating trenches from landscaped areas, then seeping along permeable trench backfill into the building and pavement subgrades, resulting in wetting of moisture sensitive subgrade earth materials under buildings and pavements.

Excavation of utility trenches should be performed in accordance with the project plans, specifications and the *California Construction Safety Orders* (2006 Edition or more current). The contractor should be responsible for providing a "competent person" as defined in Article 6 of the *California Construction Safety Orders*. Contractors should be advised that sandy soils (such as fill generated from portions of the onsite alluvium) could make excavations particularly unsafe if all safety precautions are not properly implemented. In addition, excavations at or near the toe of slopes and/or parallel to slopes may be highly unstable due to the increased driving force and load on the trench wall. Spoil piles from the excavation(s) and construction equipment should be kept away from the sides of the trenches. Leighton Consulting, Inc. does not consult in the area of safety engineering.

4.2.5 Shrinkage

The volume change of excavated onsite materials upon recompaction is expected to vary with materials, density, in situ moisture content, location and compaction effort. The in-place and compacted densities of soil materials vary and accurate overall determination of shrinkage is difficult to estimate. Therefore, we recommend that site grading include, if possible, a balance

area or ability to adjust import or export quantities to accommodate some variation. For planning purposes, we recommend that the following average shrinkage factors be applied:

Depth	Shrinkage (%)
0 to 5 feet	12 to 22
5 to 15 feet	10 to 18

In addition, due to the past agricultural uses of the surface soils, a subsidence value of 0.2 feet should be applied to the existing topographic surface elevations. In addition, a subsidence factor of 0.10 feet should be applied to the soils below the removal bottoms due to recompaction and surcharging.

4.2.6 Drainage

All drainage should be directed away from structures and pavements by means of approved permanent/temporary drainage devices. Adequate storm drainage of any proposed pad should be provided to avoid wetting of foundation soils. Irrigation adjacent to buildings should be avoided when possible. As an option, sealed-bottom planter boxes and/or drought resistant vegetation should be used within 5-feet of buildings.

4.2.6.1 Subdrainage

Subdrains will be necessary in fill over cut keyways and deeper canyon fill areas if sufficient cover is maintained, 10 feet measured from top of finished grade to top of subdrain. Fills generally saturate near geologic contacts and the subdrains should outlet this excess water to suitable discharge areas. Contacts on fill over cut slopes which daylight cut material can present seepage problems once irrigation of the slopes and upper pads begins. The subdrains within the fill over cut keyways should mitigate this seepage problem. Subdrain details are provided in Appendix C. Canyon subdrains up to 500 lineal feet should consist of 6-inch diameter perforated pipe. Canyon subdrains greater than 500 feet should consist of 8-inch pipe. A 20-foot section of non-perforated pipe should be placed at the outlet location. The connection between the perforated and non-perforated pipe should be sealed with a minimum 6-inch thick, concrete cut-off wall placed a minimum of 2 feet beyond the perimeter of the gravel “burrito”. All outlets should be protected with a concrete apron and cover. Subdrain pipe may be schedule 40 PVC (or equal) placed in accordance with Appendix C.

4.2.7 Slope Design and Construction

For preliminary design purposes, all fill and cut slopes should be designed and constructed at 2:1 (horizontal:vertical) or flatter. Manufactured slopes are considered grossly stable for static and pseudostatic conditions to a

maximum height of 25 feet. Cut slopes should be observed by an engineering geologist during grading to verify soil materials and structure to determine if remedial measures, if needed.

Keys should be constructed at the toe of all fill slopes located on existing or cut grade as depicted in Appendix C. Compaction of each fill lift should extend out to the face of fill slope. The outer portion of fill slopes should be either overbuilt by 2 feet (minimum) and trimmed back to the finished slope configuration or compacted in vertical increments of 5 feet (maximum) by a weighted sheepsfoot roller as the fill is placed. The slope face should then be track-walked by dozers of appropriate weight to achieve the final slope configuration and compaction to the slope face.

Slope faces are inherently subject to erosion, particularly if exposed to rainfall and irrigation. Landscaping and slope maintenance should be conducted as soon as possible in order to increase long-term surficial stability. Berms should be provided at the top of fill slopes. Drainage should be directed such that surface runoff on the slope face is minimized

4.3 Foundation Design

Shallow spread footings bearing on newly placed and properly compacted fill are anticipated for the proposed structures.

4.3.1 Design Parameters – Spread/Continuous Shallow Footings

Conventional spread/continuous shallow footings appear to be feasible to support the proposed structures. Footings should be embedded at least 12-inches below lowest adjacent grade for the proposed structures. Footing embedments should be measured from lowest adjacent finished grade, considered as the top of interior slabs-on-grade or the finished exterior grade, excluding landscape topsoil, whichever is lower. Footings located adjacent to utility trenches or vaults should be embedded below an imaginary 1:1 (horizontal:vertical) plane projected upward and outward from the bottom edge of the trench or vault, up towards the footing.

- **Bearing Capacity**: A net allowable bearing capacity of 2,500 pounds per square foot (psf) may be used for design assuming that footings have a minimum base width of 18 inches for continuous wall footings and a minimum bearing area of 3 square feet (1.75-ft by 1.75-ft) for pad foundations. The bearing pressure value may be increased by 500 psf for each additional foot of embedment or each additional foot of width to a maximum vertical bearing value of 4,000 psf. These bearing values may also be increased by one-third when considering short-term seismic or wind loads. All continuous perimeter or interior footings should be reinforced with at least one No. 5 bar placed both top and bottom.

- **Lateral Loads**: Lateral loads may be resisted by friction between the footings and the supporting subgrade. A maximum allowable frictional resistance of 0.45 may be used for design. In addition, lateral resistance may be provided by passive pressures acting against foundations poured neat against properly compacted granular fill. We recommend that an allowable passive pressure based on an equivalent fluid pressure of 300 pounds-per-cubic-foot (pcf) be used in design. These friction and passive values have already been reduced by a factor-of-safety of 1.5.

4.3.2 Settlement Estimates

For settlement estimates, we assumed that column loads will be no larger than 90 kips, with bearing wall loads not exceeding 5 kips per foot of wall. If greater column or wall loads are required and/or more fill than what is anticipated (<10 feet), we should re-evaluate our foundation recommendation, and re-calculate settlement estimates.

Buildings located on compacted fill soil (as recommended in Section 4.2.1) should be designed in anticipation of 2-inch of total static settlement and 1-inch of static differential settlement within a 40 foot horizontal run. A dynamic differential settlement of 1-inch over a horizontal distance of 40 feet should also be considered.

4.4 Retaining Walls

Retaining wall earth pressures are a function of the amount of wall yielding horizontally under load. If the wall can yield enough to mobilize full shear strength of backfill soils, then the wall can be designed for "active" pressure. If the wall cannot yield under the applied load, the shear strength of the soil cannot be mobilized and the earth pressure will be higher. Such walls should be designed for "at rest" conditions. If a structure moves toward the soils, the resulting resistance developed by the soil is the "passive" resistance. Retaining walls backfilled with non-expansive soils should be designed using the following equivalent fluid pressures:

Table 3. Retaining Wall Design Earth Pressures (Static, Drained)

Loading Conditions	Equivalent Fluid Density (pcf)	
	Level Backfill	2:1 Backfill
Active	38	55
At-Rest	60	74
Passive*	300	110 (2:1, sloping down)

* This assumes level condition in front of the wall will remain for the duration of the project, not to exceed 4,500 psf at depth.

Unrestrained (yielding) cantilever walls should be designed for the active equivalent-fluid weight value provided above for very low expansive soils that are free draining. In the design of walls restrained from movement at the top (non-yielding) such as basement or elevator pit/utility vaults, the at-rest equivalent fluid weight value should be used. Total depth of retained earth for design of cantilever walls should be measured as the vertical distance below the ground surface measured at the wall face for stem design, or measured at the heel of the footing for overturning and sliding calculations. Should a sloping backfill other than a 2:1 (horizontal:vertical) be constructed above the wall (or a backfill is loaded by an adjacent surcharge load), the equivalent fluid weight values provided above should be re-evaluated by us on an individual case basis. Non-standard wall designs should also be reviewed by us prior to construction to check that the proper soil parameters have been incorporated into the wall design.

All retaining walls should be provided with appropriate drainage. The outlet pipe should be sloped to drain to a suitable outlet. Wall backfill should be non-expansive (EI $\leq$ 20) sands compacted by mechanical methods to a minimum of 90 percent relative compaction (ASTM D 1557). Clayey site soils should not be used as wall backfill. Walls should not be backfilled until wall concrete attains the design compressive strength and/or as determined by the Structural Engineer that the wall is structurally capable of supporting backfill. Lightweight compaction equipment should be used, unless otherwise approved by the Structural Engineer.

For retaining walls less than 10 feet in height, incremental seismic loads need not be considered. However, for walls retaining more than 10 feet in height, an incremental seismic load applied as a uniform pressure of 13 psf can be used. This pressure is in addition to the static earth pressures presented above.

4.5 Vapor Retarder

It has been a standard of care to install a moisture retarder underneath all slabs where moisture condensation is undesirable. Moisture vapor retarders may retard but not totally eliminate moisture vapor movement from the underlying soils up through the slabs. Moisture vapor transmission may be additionally reduced by use of concrete additives. Leighton Consulting, Inc., does not practice in the field of moisture vapor transmission evaluation/mitigation. Therefore, we recommend that a qualified person/firm be engaged/consulted with to evaluate the general and specific moisture vapor transmission paths and any impact on the proposed construction. This person/firm should provide recommendations for mitigation of

potential adverse impact of moisture vapor transmission on various components of the structure as deemed appropriate.

4.6 Footing Setbacks

We recommend a minimum horizontal setback distance from the face of slopes for all structural footings (including retaining and decorative walls, building footings, etc.). This distance is measured from the outside bottom edge of the footing horizontally to the slope face (or to the face of a retaining wall) and should be a minimum of H/2, where H is the slope height (in feet). The setback should not be less than 7 feet and need not be greater than 15 feet.

The soils within the structural setback area may possess poor lateral stability and improvements (such as retaining walls, decks, sidewalks, fences, pavements, etc.) constructed within this setback area may be subject to lateral movement and/or differential settlement. Potential distress to such improvements may be mitigated by providing a deepened footing or a pier and grade-beam foundation system to support the improvement. The deepened footing should meet the setback as described above.

4.7 Sulfate Attack

The results of our laboratory testing indicate that the onsite soils have negligible soluble sulfate content or less than 2,000 ppm. Common Type II cement or similar may be used for design of concrete structures in contact with the onsite soils. Further testing should be performed during site grading to confirm soluble-sulfate content in onsite soils.

Based on our laboratory testing, the onsite soil is considered corrosive to moderately corrosive to ferrous metals. Ferrous pipe buried in moist to wet site earth materials should be avoided by using high-density polyethylene (HDPE) or other non-ferrous pipe when possible. Ferrous pipe can be protected by polyethylene bags, tape or coatings, di-electric fittings or other means to separate the pipe from wet on-site soils. If buried ferrous pipes are planned for the project, further testing of import and possibly site soil corrosivity could be performed and specific recommendations for corrosion protection may need to be provided by a qualified corrosion engineer.

4.8 Preliminary Pavement Design

Our preliminary pavement design is based on an assumed R-value of 17 (silty sand materials) obtained from our laboratory testing and the guidelines included in Caltrans Highway Design Manual. For planning and estimating purposes, the

pavement sections are calculated based on Traffic Indexes (TI) as indicated in Table below:

Table 4. Preliminary Asphalt Pavement Sections

General Traffic Condition	Design Traffic Index (TI)	Asphalt Concrete (inches)	Aggregate Base (inches)
Automobile Parking Lanes	4.5	3.0	6.0
	5.0	3.0	8.0
Truck/Bus Access Driveways	6.0	3.5	10.5
	6.5	4.0	11.0

Appropriate Traffic Index (TI) should be selected or verified by the project civil engineer or traffic engineering consultant and appropriate R-value of the subgrade soils will need to be verified after completion of rough grading to finalize the pavement design. Pavement design and construction should also conform to applicable local, county and industry standards. The Caltrans pavement section design calculations were based on a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance.

Where applicable, we recommend that a minimum of 8.5 inches of PCC pavement over 6 inches of aggregate base be used, in high impact load areas or if to be subjected to truck traffic. The PCC pavement may be placed directly on a compacted subgrade with an R-Value of 40 or higher. The PCC pavement should be adequately reinforced to prevent shrinkage cracking and have a minimum of 28-day flexural strength of 650 psi. Other requirements of Caltrans Standard Specifications regarding mixing and placing of concrete should be followed.

The upper 8 inches of the subgrade soils should be moisture-conditioned to near optimum moisture content, compacted to at least 95 percent relative compaction (ASTM D1557) and kept in this condition until the pavement section is constructed. Minimum relative compaction requirements for aggregate base should be 95 percent of the maximum laboratory density as determined by ASTM D1557. If applicable, aggregate base should conform to the “Standard Specifications for Public Works Construction” (Greenbook) current edition or Caltrans Class 2 aggregate base.

If pavement areas are adjacent to heavily watered landscape areas, some deterioration of the subgrade load bearing capacity may result. Moisture control measures such as deepened curbs or other moisture barrier materials may be used to prevent the subgrade soil from becoming saturated. The use of concrete

cutoff or edge barriers should be considered when pavement is planned adjacent to either open (unfinished) or irrigated landscaped areas.

5.0 GEOTECHNICAL CONSTRUCTION SERVICES

Geotechnical review is of paramount importance in engineering practice. Poor performances of many foundation and earthwork projects have been attributed to inadequate construction review. We recommend that Leighton Consulting, Inc. be provided the opportunity to review the grading plan and foundation plan(s) prior to bid.

Reasonably-continuous construction observation and review during site grading and foundation installation allows for evaluation of the actual soil conditions and the ability to provide appropriate revisions where required during construction. Geotechnical conclusions and preliminary recommendations should be reviewed and verified by Leighton Consulting, Inc. during construction, and revised accordingly if geotechnical conditions encountered vary from our findings and interpretations. Geotechnical observation and testing should be provided:

- After completion of site demolition and clearing,
- During over-excavation of compressible soil,
- During cut slope excavation
- During compaction of all fill materials,
- After excavation of all footings and prior to placement of concrete,
- During utility trench backfilling and compaction, and
- When any unusual conditions are encountered.

Additional geotechnical exploration and analysis should be performed based on final development plans. We should review grading (civil) and foundation (structural) plans, and comment further on geotechnical aspects of this project.

6.0 LIMITATIONS

This report was based in part on data obtained from a limited number of observations, site visits, soil excavations, samples and tests. Such information is, by necessity, incomplete. The nature of many sites is such that differing soil or geologic conditions can be present within small distances and under varying climatic conditions. Changes in subsurface conditions can and do occur over time. Therefore, our findings, conclusions and recommendations presented in this report are based on the assumption that we (Leighton Consulting, Inc.) will provide geotechnical observation and testing during construction as the Geotechnical Engineer of Record for this project.

This report was prepared for the sole use of Bonsall Unified School District and their design team, for application to design the Proposed High School – Gird Road Property, APN: 124-340-34-00, in accordance with generally accepted geotechnical engineering practices at this time in California. In addition, since this is a public school project, our report may be subject to review by the California Geological Survey (CGS) and/or the California Division of the State Architect (DSA). As such, we recommend that geologic/geotechnical data in this report be only used in the design of this project after review and approval by CGS. Any premature (before CGS approval) or unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Leighton Consulting, Inc. from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of Leighton Consulting, Inc.

REFERENCES

Army Corps of Engineers, Evaluation of Settlement for Dynamic and Transient Loads, Technical Engineering and Design Guides as Adapted from the US Army Corps of Engineers, No. 9, American Society of Civil Engineers Press.

Blake, T. F., 2000a, EQSEARCH, *A Computer Program for the Estimation of Peak Horizontal Acceleration from California Historical Earthquake Catalogs*, IBM-PC Compatible Version, User's Manual, January 1996 with update data, 2006.

Blake T.F., 2000b, EQFAULT, Version 3, A Computer Program for the Deterministic Prediction of Peak Horizontal Acceleration from Digitized California Faults, User's Manual, 77pp.

California Building Code, 2013, California Code of Regulations Title 24, Part 2, Volume 2 of 2.

California Department of Water Resources (CDWR) 2016, Water Data Library, http://www.water.ca.gov/waterdatalibrary/index.cfm, Data viewed April 1, 2016.

California Geologic Survey (CGS), 2003. The Revised 2002 California Probabilistic Seismic Hazard Maps, June 2003. By Tianquing Cao, William A. Bryant, Badie Rowshandel, David Branum and Christopher J. Wills.

California Geological Survey, (CGS), 2007, Note 48, Checklist for the Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings, dated October 2007.

California Geological Survey, 2005, Geologic Map of the Oceanside 30x60-minute quadrangle, California, Regional Geologic Map No. 2, Scale 1:100,000.

California Geologic Public Works Standard, Inc., 2015, *Greenbook, Standard Specifications for Public Works Construction:* BNI Building News, Anaheim, California.

Gastil, G., et al, 1978, Mesozoic History of Peninsular California and Related Areas East of the Gulf of California, in: Mesozoic Paleogeography at the Western United States, D.G. Howell and K.A. McDougall, eds. Pacific Section of the S.E.P.M., Los Angeles, California.

Hart, E.W., Bryant, W. A., 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning with Index to Earthquake Zones Maps: Department of Conservation, Division of Mines and Geology, Special Publication 42. Interim Revision 2007.

Jennings, C.W., 1994, Fault Activity Map of California and Adjacent Areas, California Division of Mines and Geology, Geologic Data Map Series, No. 6, Scale 1:750,000.

Tan, S. S., 2000, Geologic Map of the Bonsall 7.5-minute quadrangle, San Diego County, California: A digital database.: California Geological Survey, Preliminary Geologic Maps, scale 1:24,000.

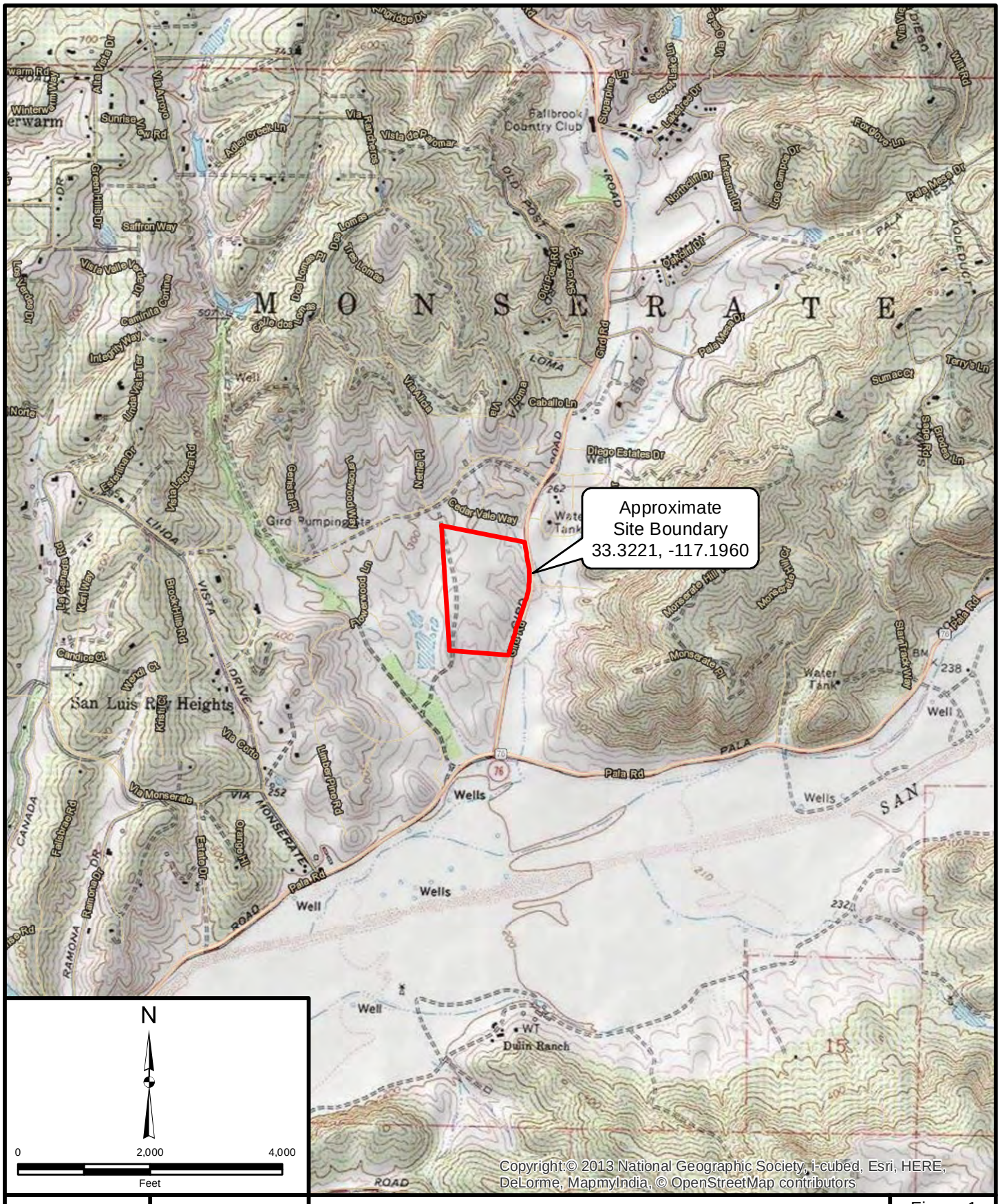
Tokimatsu, K., and Seed, H.B., 1987, Evaluation of Settlements in Sands Due to Earthquake Shaking, ASCE Journal of Geotechnical Engineering, Vol. 113, No. 8, dated August.

USGS, 2014, An Interactive Computer Program available on USGS website to calculate Seismic Hazard Curves and Response and Design Parameters based on ASCE 7-10 (April): http://geohazards.usgs.gov/designmaps/us/

Youd and Garris, 1995, "Liquefaction-Induced Ground-Surface Disruption," *Journal of Geotechnical Engineering,* November 1995, pp. 805-808

Aerial Photographs Reviewed

Flight Date	Photograph No.
04/06/1972	107-4-3, -4
08/02/1978	210-20B-3, -4, -5
04/09/1980	FCSD-4-8, -9
01/14/1988	SD-4-4, -5
10/30/1993	C98-6-35, -36, -37
07/09/1998	C120-6-99, -100, -101



N

0 2,000 4,000

Feet

Project: 11279.001	Eng/Geol: KEC/RFR
Scale: 1 " = 2,000 '	Date: April 2016

Base Map: Bing Maps, 2016
Thematic Information: Leighton
Author: Leighton Geomatics (mmurphy)

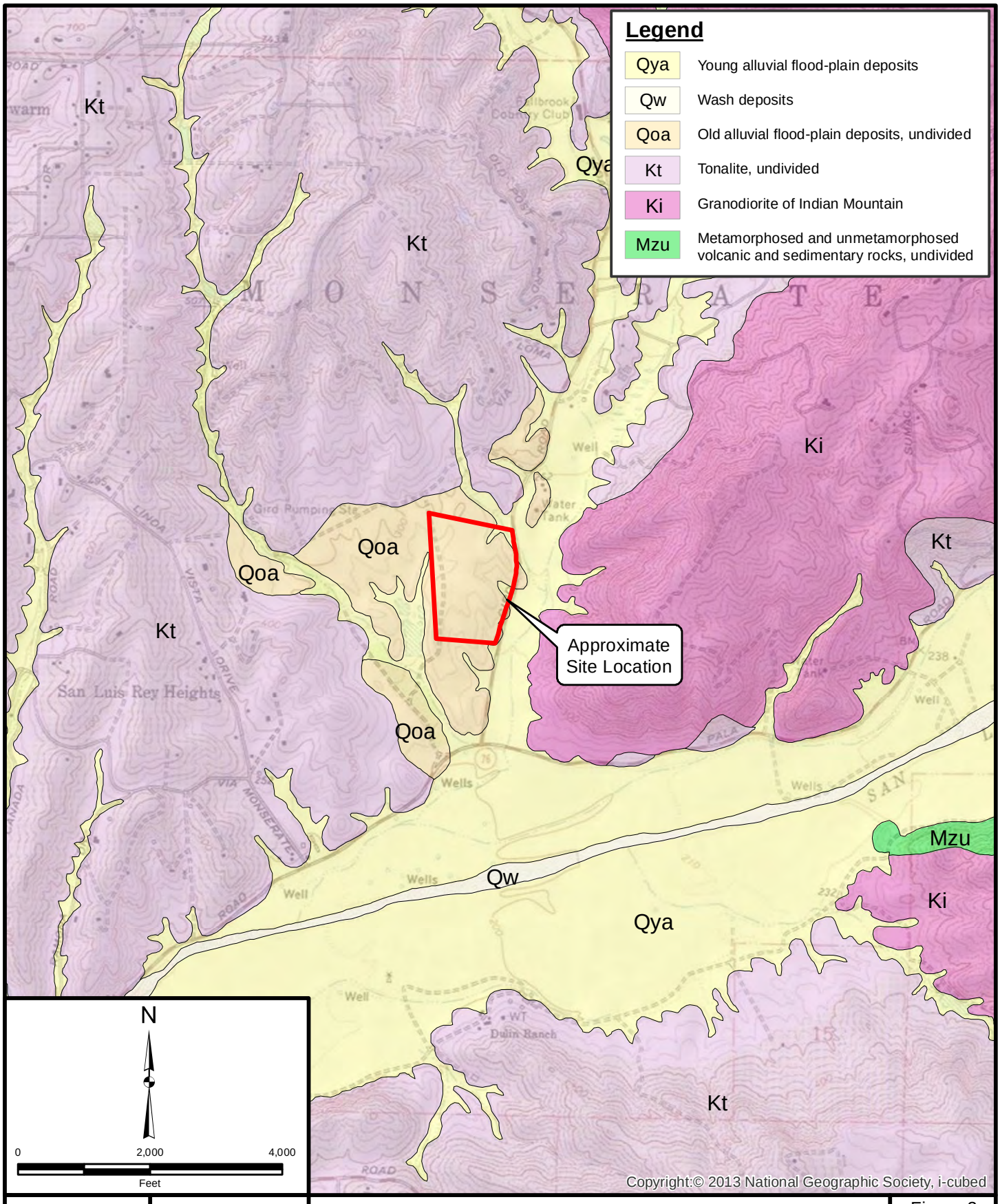
SITE LOCATION MAP

Bonsall Unified School District
Gird Road High School Site
Bonsall, California

Figure 1

Leighton

Map Saved as V:\Drafting\11279\001\Maps\11279-001_F01_SLM_2016-04-04.mxd on 4/4/2016 3:39:03 PM



Project: 11279.001	Eng/Geol: KEC/RFR
Scale: 1 " = 2,000 '	Date: April 2016

Base Map: ESRI ArcGIS Online 2016
Geology: Geologic Map of the Oceanside 30'x60' Quadrangle, California, Version 1.0 by Michael P. Kennedy and Siang S. Tan, 2005.
Author: Leighton Geomatics (mmurphy)

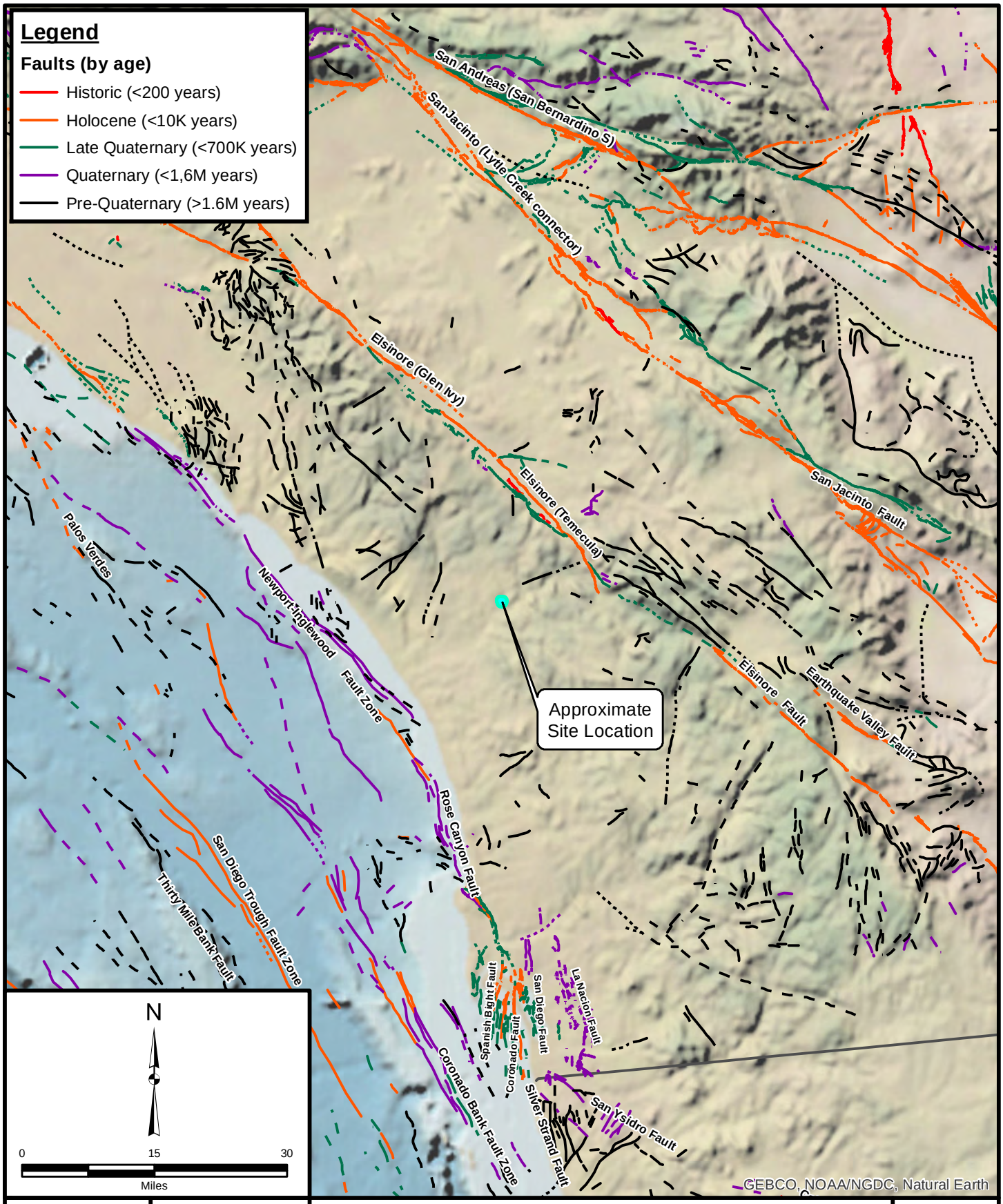
REGIONAL GEOLOGY MAP

Bonsall Unified School District
Gird Road High School Site
Bonsall, California

Figure 2

Leighton

Map Saved as V:\Drafting\11279\001\Maps\11279-001_F02_RGM_2016-04-04.mxd on 4/20/2016 3:10:24 PM



Project: 11264.001	Eng/Geol: KEC/RFR
Scale: 1 " = 15 miles	Date: April 2016

Base Map: ESRI Resource Center 2016
Thematic Info: Leighton, USGS, NCEDC
Author: Geomatics (mmurphy)

REGIONAL FAULT MAP

Bonsall Unified School District
Gird Road High School Site
Bonsall, California

Figure 3

Leighton

Map Saved as V:\Drafting\11279\001\Maps\11279-001_F03_RFM_2016-04-05A.mxd on 4/5/2016 11:15:03 AM

Project: 11279.001	Eng/Geol: KEC/RFR
Scale: 1 " = 1 miles	Date: April 2016

Base Map: Bing Maps, 2016
Thematic Information: Leighton, CA DWR, FEMA
Author: Leighton Geomatics (mmurphy)

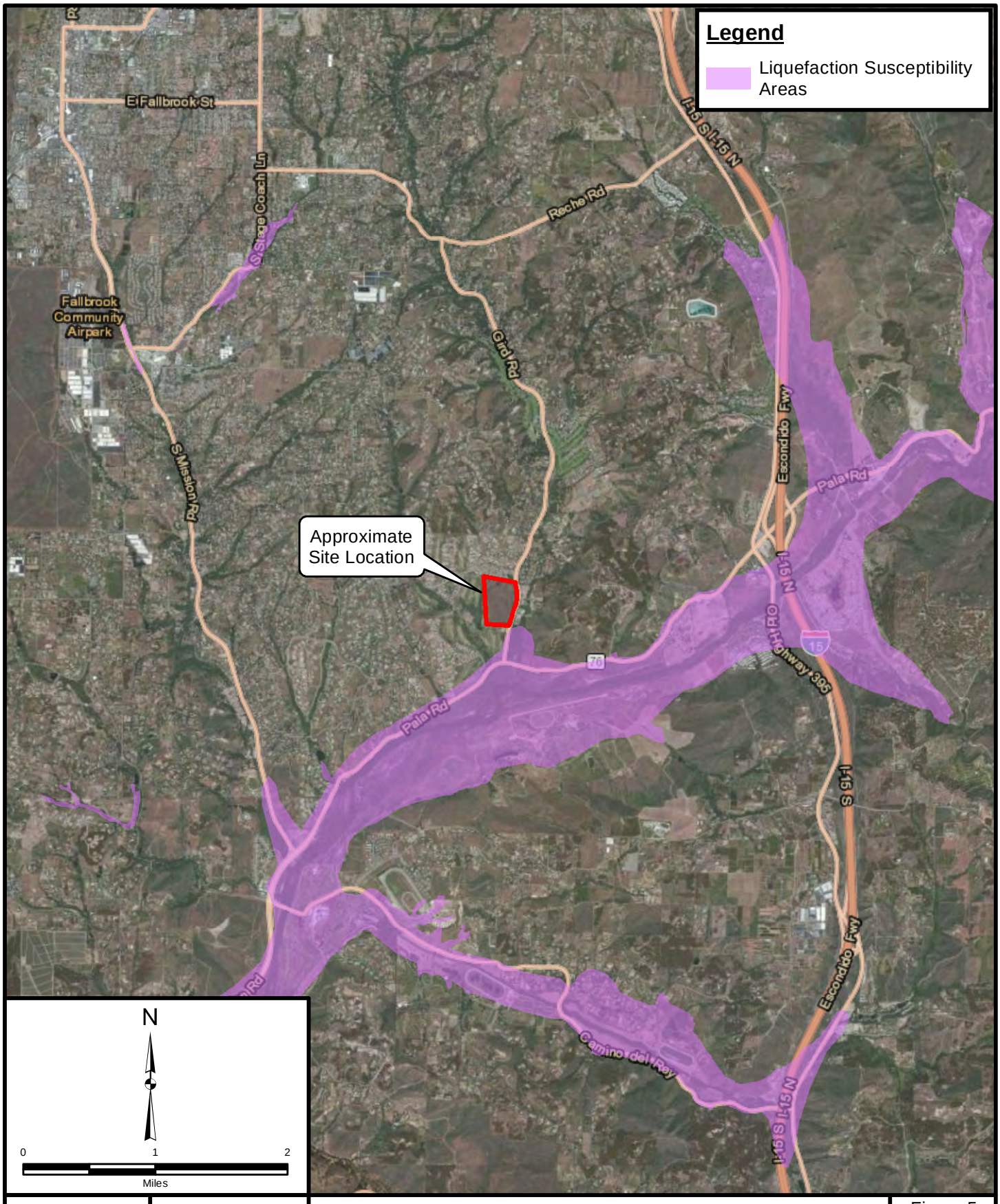
FLOOD HAZARD ZONE MAP

Bonsall Unified School District
Gird Road High School Site
Bonsall, California

Figure 4

Leighton

Map Saved as V:\Drafting\11279\001\Maps\11279-001_F04_FHM_2016-04-05.mxd on 4/5/2016 11:26:16 AM



Project: 11279.001	Eng/Geol: KEC/RFR
Scale: 1 " = 1 mile	Date: April 2016

Base Map: Bing Maps, 2016
Thematic Information: Leighton, County of San Diego
Author: Leighton Geomatics (mmurphy)

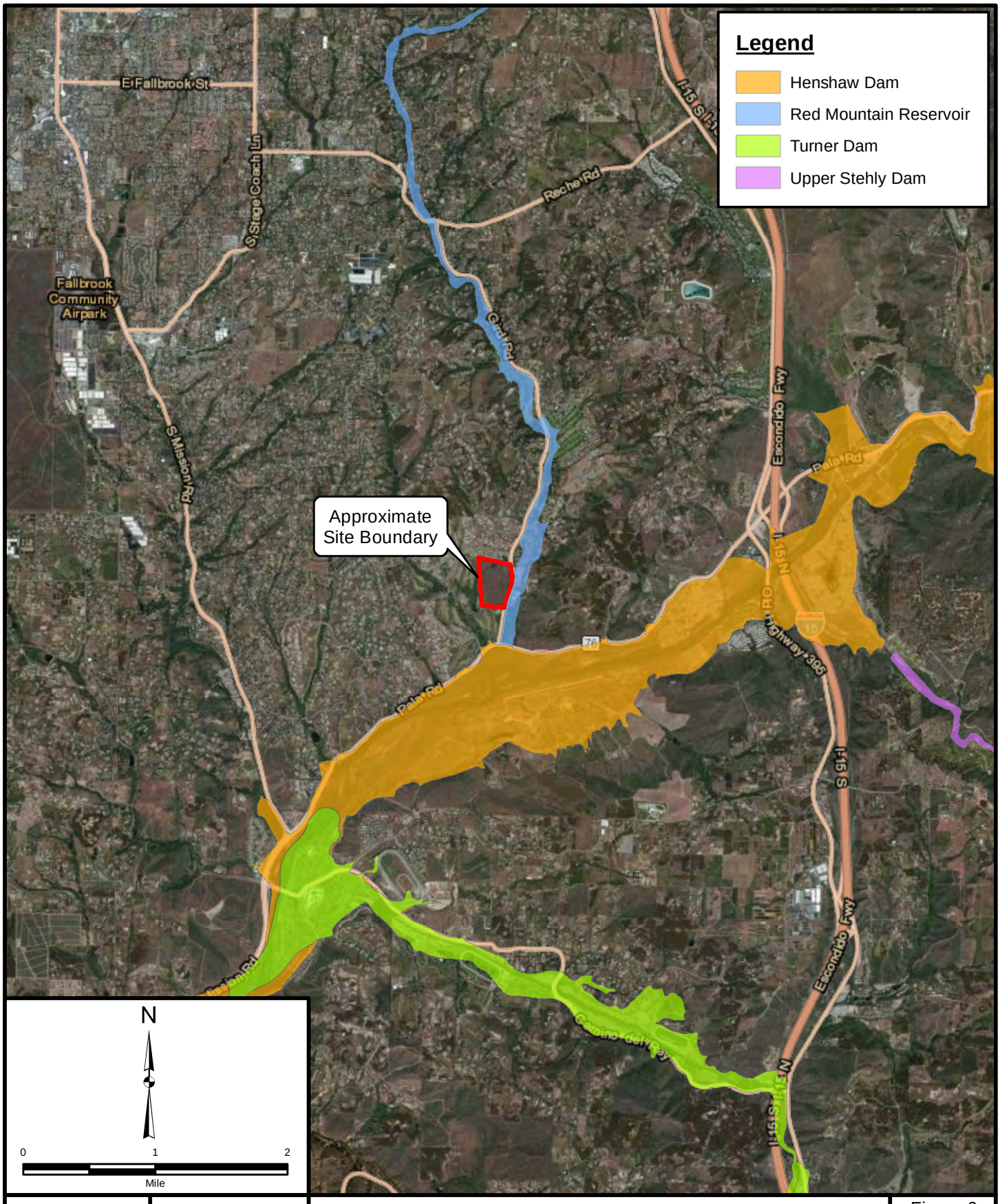
SEISMIC HAZARD MAP

Bonsall Unified School District
Gird Road High School Site
Bonsall, California

Figure 5

Leighton

Map Saved as P:\Drafting\11279\001\Maps\11279-001_F05_SHM_2016-04-05.mxd on 4/5/2016 1:56:25 PM



Project: 11279.001	Eng/Geol: KEC/RFR
Scale: 1 " = 1 miles	Date: April 2016

Base Map: Bing Maps, 2016
Thematic Information: Leighton, CA DWR
Author: Leighton Geomatics (mmurphy)

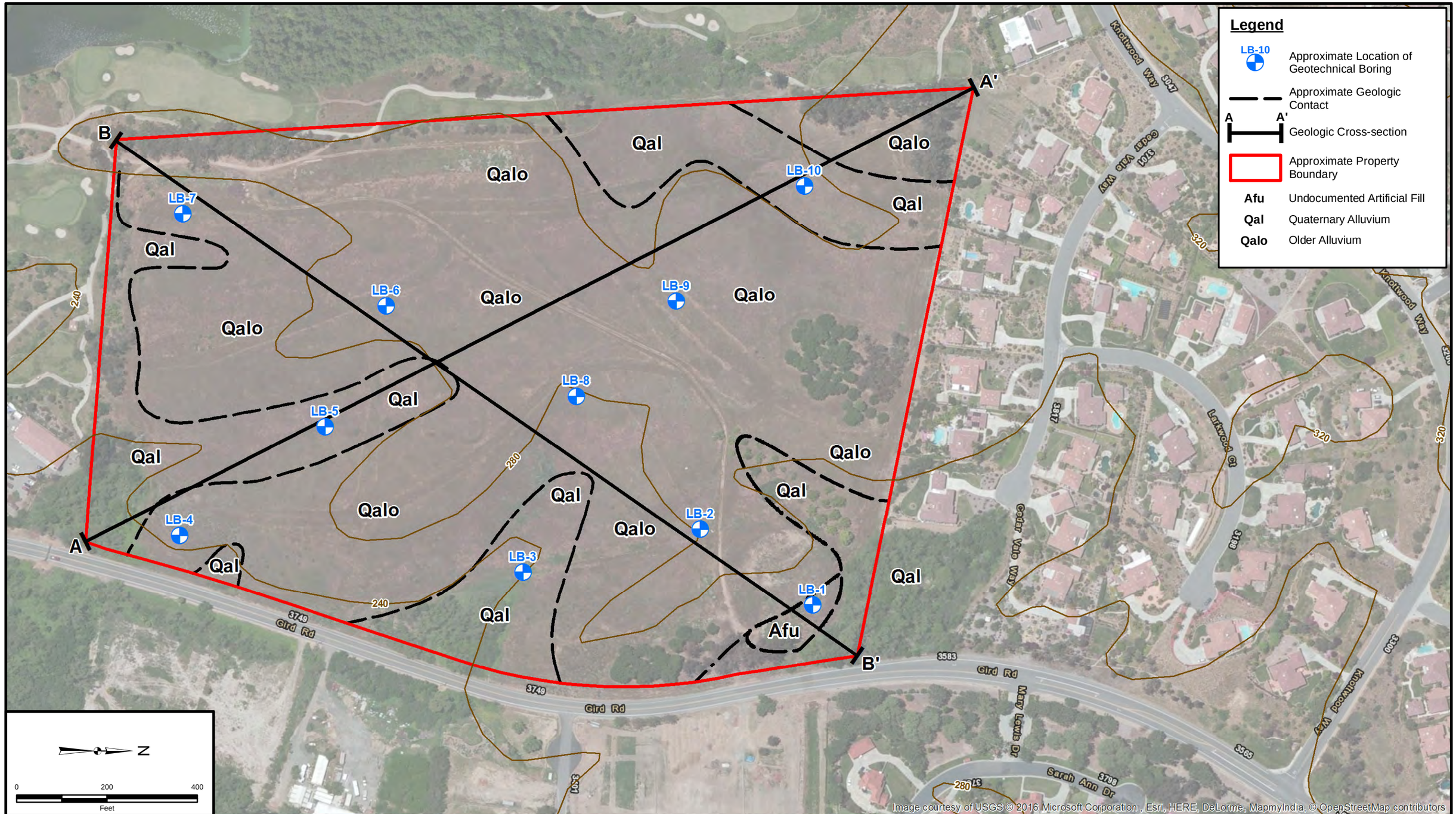
DAM INUNDATION ZONE MAP

Bonsall Unified School District
Gird Road High School Site
Bonsall, California

Figure 6

Leighton

Map Saved as V:\Drafting\11279\001\Maps\11279-001_F06_DIM_2016-04-05.mxd on 4/5/2016 11:36:25 AM



Project: 11279.001	Eng/Geol: KEC/RFR
Scale: 1 " = 200 '	Date: April 2016

Base Map: Bing Maps, 2016
Thematic Information: Leighton
Author: Leighton Geomatics (mmurphy)

GEOTECHNICAL MAP

Bonsall Unified School District
Gird Road High School Site
Bonsall, California

Plate 1

Leighton

Map Saved as V:\Drafting\11279\001\Maps\11279-001_P01_GM_2016-04-05.mxd on 4/21/2016 10:03:19 AM

APPENDIX A

LOGS OF EXPLORATORY BORINGS

Encountered earth materials were continuously logged and sampled in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D 2488). During drilling, bulk and relatively undisturbed ring-lined split-barrel driven earth material samples were obtained from our borings for geotechnical laboratory testing and classification. Drive-samples were driven with a 140-pound auto-hammer falling 30-inches. Samples were transported to our in-house Temecula laboratory for geotechnical testing. After logging and sampling, our borings were backfilled with spoils generated during drilling.

The attached subsurface exploration logs and related information depict subsurface conditions only at the locations indicated and at the particular date designated on these logs. Subsurface conditions at other locations may differ from conditions occurring at these logged locations. Passage of time may result in altered subsurface conditions due to environmental changes. In addition, any stratification lines on these logs represent an approximate boundary between sampling intervals and soil types; and transitions may be gradual.

GEOTECHNICAL BORING LOG LB-1

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~265'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1				SM	**Undocumented Artificial Fill (Afu)**; SILTY SAND, dark brown, moist, fine to coarse grained sand	
				R-1	8 17 18	104	15	SM	**Quaternary Alluvium (Qal)**; SILTY SAND, medium dense, brown, dry to moist, fine grained sand, few pinhole voids, CO = -0.62%	CO
	5			R-2	13 14 12	111	12	SW-SM	Well-graded SAND with SILT, medium dense, reddish brown, moist, fine to medium grained sand	
								CL	SANDY Lean CLAY, dark brown, moist, fine to medium grained sand	
	10			R-3	7 10 15	112	18	SM	SILTY SAND, medium dense, dark grayish brown to dark yellowish brown, moist, fine to medium grained sand, trace clay	
	15			R-4	14 23 37	113	18	CL	SANDY Lean CLAY, hard, dark grayish brown to dark yellowish brown, moist, fine to coarse grained sand	
	20			S-1	11 15 17			SC-SM	SILTY, CLAYEY SAND, dense, dark yellowish brown, moist, fine to medium grained sand, 37% -200	-200, AL
	25			R-5	10 12 19	116	16	SM	SILTY SAND, medium dense, dark yellowish brown, moist, fine to medium grained sand	
	30									

Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-1

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~265'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			S-2	4 4 5			CL	Lean CLAY with SAND, stiff, dark grayish brown, moist to wet, very fine grained sand, sampler wet @ 30', 71% -200	-200
	35			R-6	7 9 12	111	19		SANDY Lean CLAY, stiff, dark grayish brown, wet, fine to coarse grained sand	
	40			S-3	5 6 12				SANDY Lean CLAY, stiff, dark grayish brown, wet, fine to coarse grained sand	
								SM	SILTY SAND, medium dense, dark grayish brown, wet, fine grained sand	
	45			S-4	5 4 10				SILTY SAND, medium dense, dark brown, wet, fine to medium grained sand, water added at 45', 35% -200	-200
								CL	SANDY Lean CLAY, stiff, dark grayish brown, wet, very fine to fine grained sand	
	50			S-5	6 7 12				Lean CLAY with SAND, very stiff, dark grayish brown, wet, very fine to fine sand, water added @ 50'	AL, SA
									Drilled to 51.5' Sampled to 51.5' Groundwater at 28.2' Backfilled with bentonite	
	55									
	60									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-2

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~280'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1				SM	**Older Alluvium (Qalo)**; SILTY SAND with GRAVEL, brown, dry to moist, fine to coarse grained sand with fine gravel, EI = 68, RV = 10	EI, RV
								SC-SM	SILTY, CLAYEY SAND, reddish brown, moist, fine to medium grained sand	
	5			R-1	20 37 50/5"			SM	SILTY SAND, dense, reddish brown, moist, fine to medium grained sand	
									SILTY SAND, dark reddish brown, moist, fine to medium grained sand	
	10			R-2	24 32 33				SILTY SAND, dense, dark grayish brown, moist, fine to coarse grained sand	
	15			R-3	11 14 20				SILTY SAND, medium dense, grayish brown, moist, fine to coarse grained sand	
									Drilled to 16.5' Sampled to 16.5' Groundwater not encountered Backfilled with cuttings	
	20									
	25									
	30									

Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-3

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~240'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1				SM	**Quaternary Alluvium (Qal)**; SILTY SAND, dark brown, dry to moist, fine to medium grained sand	CR
				R-1	10 10 11	118	7		SILTY SAND, medium dense, dark reddish brown, moist, fine to medium grained sand, few pinhole voids, CO = -1.16%	CO
	5			R-2	4 7 10			SC	CLAYEY SAND, medium dense, dark reddish brown, moist, fine to coarse grained sand, trace pinhole voids	
									CLAYEY SAND, dark grayish brown, moist, fine to coarse grained sand	
▼	10			R-3	3 7 11			CL	SANDY Lean CLAY, stiff, dark grayish brown, moist to wet, very fine to medium grained sand, no recovery, resample with SPT	
	15			R-4	9 12 15			SC	CLAYEY SAND, medium dense, dark grayish brown, wet, fine to coarse grained sand	
	20			S-1	7 13 12			CL	SANDY Lean CLAY with GRAVEL, very stiff, dark grayish brown, wet, fine grained sand, with gravel to 1"	
									Drilled to 21.5' Sampled to 21.5' Groundwater at 10.5' Backfilled with bentonite	
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-4

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~245'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0							SM	**Older Alluvium (Qalo)**; SILTY SAND with GRAVEL, brown, moist, fine to coarse grained sand with fine gravel	
									SILTY SAND, yellowish brown, moist, fine to medium grained sand	
	5			R-1	12 15 20	118	2	SW	Well-graded SAND with GRAVEL, medium dense, light brown, dry to moist, fine to coarse grained sand with fine gravel	
								SW-SM	Well-graded SAND with SILT and GRAVEL, yellowish brown, moist, fine to coarse grained sand with fine gravel	
	10			R-2	7 13 18			SW	Well-graded SAND with GRAVEL, medium dense, grayish brown, dry to moist, fine to coarse grained sand with fine gravel	
	15			R-3	17 27 30			SM	SILTY SAND, dense, dark grayish brown, moist, fine to coarse grained sand	
									Drilled to 16.5' Sampled to 16.5' Groundwater not encountered Backfilled with cuttings	
	20									
	25									
	30									

The Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-5

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~260'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1				SM	**Quaternary Alliuvum (Qal)**; SILTY SAND, brown, dry to moist, fine to medium grained sand, EI = 8, RV = 17	EI, RV
									SILTY SAND, dark reddish brown, moist, fine to medium grained sand	
	5			R-1	12 19 34			SC	**Older Alluvium (Qalo)**; CLAYEY SAND, dense, dark reddish brown, moist, fine to coarse grained sand	
	10			R-2	12 16 25				CLAYEY SAND, medium dense, dark reddish brown, moist, fine to coarse grained sand	
	15			R-3	10 12 20				CLAYEY SAND, medium dense, dark reddish brown, moist, fine to coarse grained sand	
									Drilled to 16.5' Sampled to 16.5' Groundwater not encountered Backfilled with cuttings	
	20									
	25									
	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-6

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~285'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
	0							SM	**Older Alluvium (Qalo)**; SILTY SAND, grayish brown, dry to moist, fine to medium grained sand	
									SILTY SAND, dark yellowish brown, moist, fine to medium grained sand	
	5			R-1	17 19 35				SILTY SAND, dense, dark yellowish brown, moist, fine to medium grained sand	
	10			R-2	15 16 22			SC-SM	SILTY, CLAYEY SAND, medium dense, dark grayish brown to dark yellowish brown, moist, fine to coarse grained sand	
	15			R-3	12 16 25			SP	Poorly graded SAND, medium dense, dark grayish brown, dry to moist, fine grained sand	
									Drilled to 16.5' Sampled to 16.5' Groundwater not encountered Backfilled with cuttings	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-7

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~270'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1				SM	**Older Alluvium (Qalo)**; SILTY SAND, brown, dry to moist, fine to coarse grained sand, MD = 136.0 @ 7.2%	MD, DS
									SILTY SAND, yellowish brown, moist, fine to medium grained sand	
	5			R-1	12 15 23	123	12	SC-SM	SILTY, CLAYEY SAND, medium dense, grayish brown, moist, fine to coarse grained sand	
	10			R-2	14 18 14			SW-SM	Well-graded SAND with SILT, medium dense, dark grayish brown, dry to moist, fine to coarse grained sand	
	15			R-3	11 14 27			SM	SILTY SAND, medium dense, dark yellowish brown, moist, fine grained sand	
									Drilled to 16.5' Sampled to 16.5' Groundwater not encountered Backfilled with cuttings	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-8

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~280'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0							SM	**Older Alluvium (Qalo)**; SILTY SAND, brown, dry to moist, fine to medium grained sand	
									SILTY SAND, dark yellowish brown, moist, fine to medium grained sand	
	5			R-1	40 38 45				SILTY SAND, very dense, brown, dry to moist, fine to coarse grained sand	CR, DS
	10			R-2	16 24 33			SP-SM	Poorly graded SAND with SILT, dense, grayish brown, dry to moist, fine grained sand	
	15			R-3	21 32 43			SM	SILTY SAND, very dense, dark reddish brown, moist, fine to coarse grained sand	
									Drilled to 16.5' Sampled to 16.5' Groundwater not encountered Backfilled with cuttings	
	20									
	25									
	30									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-9

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~290'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
	0							SM	**Older Alluvium (Qalo)**; SILTY SAND, brown, dry to moist, fine to medium grained sand	
									SILTY SAND, dark yellowish brown, moist, fine to medium grained sand	
	5			R-1	11 9 14			SP-SM	Poorly graded SAND with SILT, medium dense, dark reddish brown, moist, fine grained sand	
	10			R-2	20 19 21			SM	SILTY SAND, medium dense, dark reddish brown, moist, fine grained sand	
	15			R-3	10 16 38			SC-SM	SILTY, CLAYEY SAND, dense, dark reddish brown, moist, fine to medium grained sand	
									Drilled to 16.5' Sampled to 16.5' Groundwater not encountered Backfilled with cuttings	
	20									
	25									
	30									

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-10

Project No.	11279.001	**Date Drilled**	3-29-16
Project	BUSD Gird Road	**Logged By**	JTD
Drilling Co.	Pacific Drilling	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	~275'
Location	See Boring Location Map	**Sampled By**	JTD

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1				SM	**Quaternary Alluvium (Qal)**; SILTY SAND, brown, dry to moist, fine to medium grained sand, MD = 135.2 @ 7.8%	MD
				R-1	4 4 5	109	5		SILTY SAND, loose, dark brown, moist, fine to medium grained sand	
	5			R-2	6 9 15			SC-SM	SILTY, CLAYEY SAND, medium dense, dark reddish brown to dark brown, moist, fine to coarse grained sand	
	10			R-3	14 16 23			SC-SM	**Older Alluvium (Qalo)**; SILTY, CLAYEY SAND, medium dense, dark reddish brown, moist, fine to medium grained sand	
	15			R-4	9 18 22				SILTY, CLAYEY SAND, medium dense, dark reddish brown to dark grayish brown, moist, fine to medium grained sand	
									Drilled to 16.5' Sampled to 16.5' Groundwater not encountered Backfilled with cuttings	
	20									
	25									
	30									

SAMPLE TYPES:

- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

APPENDIX B

RESULTS OF GEOTECHNICAL LABORATORY TESTING

Boring No.	LB-1	LB-1	LB-1	LB-1	LB-1	LB-1	LB-3	LB-4
Sample No.	R-1	R-2	R-3	R-4	R-5	R-6	R-1	R-1
Depth (ft.)	2.5	5.0	10.0	15.0	25.0	35.0	2.5	5.0
Sample Type	RING	RING	RING	RING	RING	RING	RING	RING
Visual Soil Classification	**TOP: SM BOTTOM: SM**	**TOP: SW-SM BOTTOM: SW-SM**	**TOP: SM BOTTOM: SM**	**TOP: s(CL) BOTTOM: s(CL)**	**TOP: SM BOTTOM: SM**	**TOP: s(CL) BOTTOM: s(CL)**	**TOP: SM BOTTOM: SM**	**TOP: SM BOTTOM: SM**
Pocket Penetrometer								
Weight Soil + Rings / Tube (gm.)	1134.0	1164.6	1221.5	1023.6	1243.5	1018.6	1180.5	1134.8
Weight of Rings / Tube (gm.)	267.0	267.0	267.0	222.5	267.0	222.5	267.0	267.0
Average Length (in.)	6.0	6.0	6.0	5.0	6.0	5.0	6.0	6.0
Average Diameter (in.)	2.416	2.416	2.416	2.416	2.416	2.416	2.416	2.416
Wet. Wt. of Soil + Cont. (gm.)	293.6	271.2	351.2	238.5	335.4	331.0	163.8	302.1
Dry Wt. of Soil + Cont. (gm.)	260.1	247.7	303.9	210.3	294.0	286.5	155.2	297.3
Weight of Container (gm)	39.0	50.3	38.7	50.1	38.8	51.0	38.9	50.5
Container No.:	A-7	BB	A-12	LL	101	25	A-29	F
Wet Density (pcf)	120	124	132	133	135	132	127	120
Moisture Content (%)	**15**	**12**	**18**	**18**	**16**	**19**	**7**	**2**
Dry Density (pcf)	**104**	**111**	**112**	**113**	**116**	**111**	**118**	**118**
Degree of Saturation (%)	66	62	96	97	98	99	46	12

Leighton

MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name: BSUSD-Grid Rd HS

Project No.: 11279.0001

Client Name: Bonsall Unified School District

Tested By: M. Vinet Date: 04/08/16

Boring No.	LB-7	LB-10						
Sample No.	R-1	R-1						
Depth (ft.)	5.0	2.5						
Sample Type	RING	RING						
Visual Soil Classification	**TOP: SM BOTTOM: SM**	**TOP: SM BOTTOM: SM**						
Pocket Penetrometer								
Weight Soil + Rings / Tube (gm.)	1261.5	1094.4						
Weight of Rings / Tube (gm.)	267.0	267.0						
Average Length (in.)	6.0	6.0						
Average Diameter (in.)	2.416	2.416						
Wet. Wt. of Soil + Cont. (gm.)	303.5	274.0						
Dry Wt. of Soil + Cont. (gm.)	275.5	263.2						
Weight of Container (gm)	38.3	49.6						
Container No.:	A-1	9						
Wet Density (pcf)	138	115						
Moisture Content (%)	**12**	**5**						
Dry Density (pcf)	**123**	**109**						
Degree of Saturation (%)	87	25						

Leighton

MOISTURE & DENSITY of SOILS

ASTM D 2216 & ASTM D 2937

Project Name: BSUSD-Grid Rd HS

Project No.: 11279.0001

Client Name: Bonsall Unified School District

Tested By: M. Vinet Date: 04/08/16

Leighton

MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name:	BUSD-Grid Rd HS	Tested By :	A. Hill	Date:	4/9/16
Project No.:	11279.001	Input By :	M. Vinet	Date:	4/13/16
Exploration No.:	LB-7	Depth (ft.)	0 - 5.0		
Sample No. :	B-1				
Soil Identification:	Silty Sand (SM), brown.				

Preparation Method: [X] Moist [ ] Dry [ ] Mechanical Ram [X] Manual Ram

Mold Volume (ft³) 0.03330 *Ram Weight = 10 lb.; Drop = 18 in.*

Moisture Added (ml)	0	50	100	150		
TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	6249	6416	6449	6360		
Weight of Mold (g)	4243	4243	4243	4243		AS REC'D
Net Weight of Soil (g)	2006	2173	2206	2117		MOISTURE
Wet Weight of Soil + Cont. (g)	688.9	1094.2	899.2	1064.7		1536.5
Dry Weight of Soil + Cont. (g)	665.9	1037.7	838.8	990.7		1477.2
Weight of Container (g)	136.9	163.0	136.3	289.6		163.5
Moisture Content (%)	4.3	6.5	8.6	10.6		4.5
Wet Density (pcf)	132.8	143.9	146.0	140.2		
Dry Density (pcf)	127.3	135.1	134.5	126.8		

Maximum Dry Density (pcf) **136.0** **Optimum Moisture Content (%)** **7.2**

PROCEDURE USED

[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

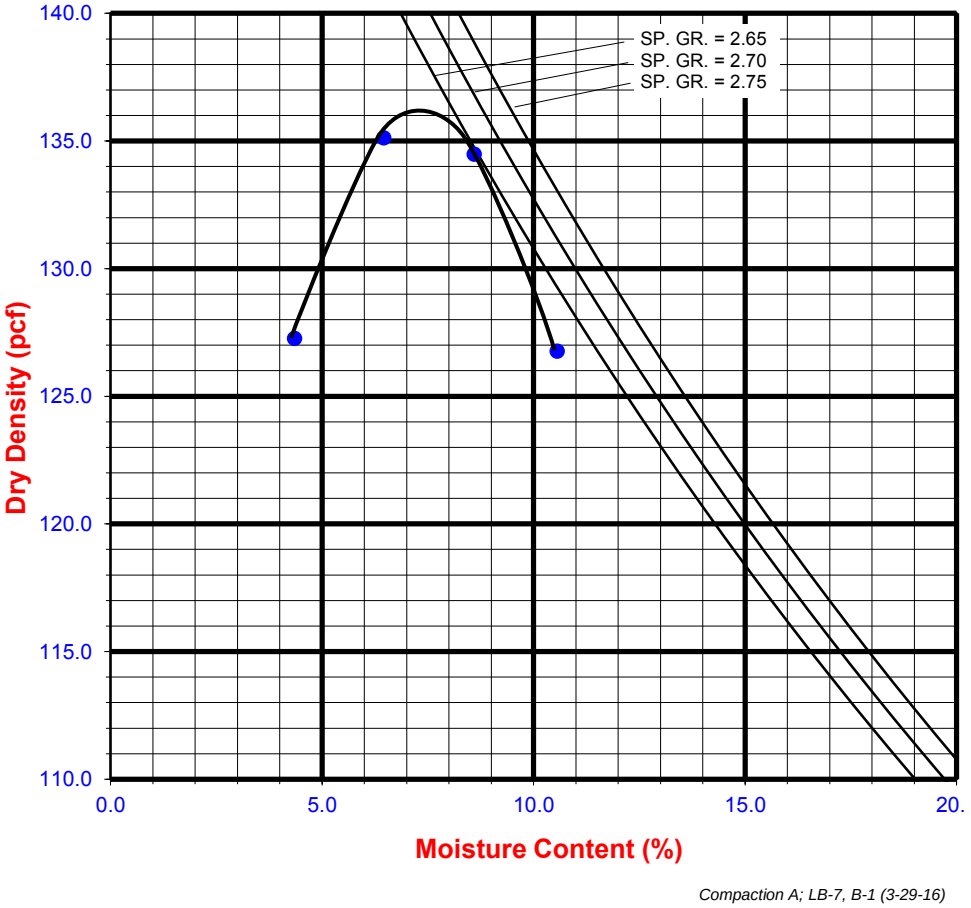
[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:

GR:SA:FI

Atterberg Limits:

LL,PL,PI



Leighton

MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name:	BUSD-Grid Rd HS	Tested By :	A. Hill	Date:	4/11/16
Project No.:	11279.001	Input By :	M. Vinet	Date:	4/13/16
Exploration No.:	LB-10	Depth (ft.)	0 - 5.0		
Sample No. :	B-1				
Soil Identification:	Silty Sand (SM), brown.				

Preparation Method: [X] Moist [ ] Dry [ ] Mechanical Ram [X] Manual Ram

Mold Volume (ft³) 0.03330 *Ram Weight = 10 lb.; Drop = 18 in.*

Moisture Added (ml)	0	50	100	150		
TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	6274	6367	6443	6380		
Weight of Mold (g)	4243	4243	4243	4243		AS REC'D
Net Weight of Soil (g)	2031	2124	2200	2137		MOISTURE
Wet Weight of Soil + Cont. (g)	958.6	734.0	813.8	807.3		1750.0
Dry Weight of Soil + Cont. (g)	927.5	700.2	766.4	741.2		1695.4
Weight of Container (g)	136.9	118.4	163.3	81.4		312.4
Moisture Content (%)	3.9	5.8	7.9	10.0		3.9
Wet Density (pcf)	134.5	140.6	145.6	141.5		
Dry Density (pcf)	129.4	132.9	135.0	128.6		

Maximum Dry Density (pcf) **135.2** **Optimum Moisture Content (%)** **7.8**

PROCEDURE USED

[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

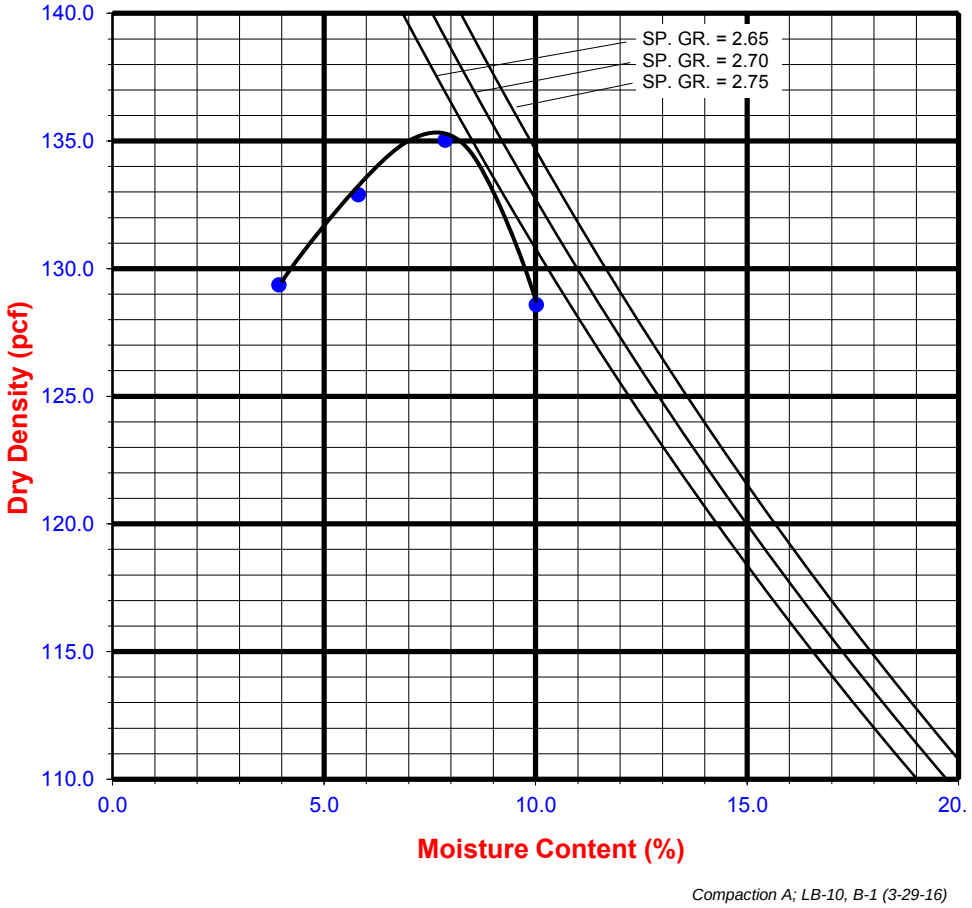
[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:

GR:SA:FI

Atterberg Limits:

LL,PL,PI



Leighton

EXPANSION INDEX of SOILS

ASTM D 4829

Project Name:	BUSD-Grid Rd HS	Tested By:	A. Hill	Date:	4/8/16
Project No. :	11279.001	Checked By:	M. Vinet	Date:	4/13/16
Boring No.:	LB-2	Depth:	0 - 5.0		
Sample No. :	B-1	Location:	N/A		
Sample Description:	Sandy Lean Clay s(CL), brown.				

Dry Wt. of Soil + Cont. (gm.)	3563.9
Wt. of Container No. (gm.)	0.0
Dry Wt. of Soil (gm.)	3563.9
Weight Soil Retained on #4 Sieve	47.1
Percent Passing # 4	98.7

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	1.0675
Wt. Comp. Soil + Mold (gm.)	622.8	657.1
Wt. of Mold (gm.)	209.7	209.7
Specific Gravity (Assumed)	2.70	2.70
Container No.	9	9
Wet Wt. of Soil + Cont. (gm.)	509.7	657.1
Dry Wt. of Soil + Cont. (gm.)	485.7	380.0
Wt. of Container (gm.)	209.7	209.7
Moisture Content (%)	8.7	17.7
Wet Density (pcf)	124.6	126.4
Dry Density (pcf)	114.6	107.4
Void Ratio	0.471	0.570
Total Porosity	0.320	0.363
Pore Volume (cc)	66.2	80.2
Degree of Saturation (%) [S meas]	**49.9**	**84.0**

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h.

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
4/8/16	10:30	1.0	0	0.5000
4/8/16	10:40	1.0	10	0.4998
	Add Distilled Water to the Specimen			
4/9/16	7:00	1.0	1220	0.5675
4/9/16	8:00	1.0	1280	0.5675

Expansion Index (EI meas) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	67.7
Expansion Index (Report) = Nearest Whole Number or Zero (0) if Initial Height is > than Final Height	**68**

Leighton

EXPANSION INDEX of SOILS
ASTM D 4829

Project Name:	BUSD-Grid Rd HS	Tested By:	A. Hill	Date:	4/8/16
Project No. :	11279.001	Checked By:	M. Vinet	Date:	4/13/16
Boring No.:	LB-5	Depth:	0 - 5.0		
Sample No. :	B-1	Location:	N/A		
Sample Description:	Silty Sand (SM), brown.				

Dry Wt. of Soil + Cont. (gm.)	4056.2
Wt. of Container No. (gm.)	0.0
Dry Wt. of Soil (gm.)	4056.2
Weight Soil Retained on #4 Sieve	58.2
Percent Passing # 4	98.6

MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	1.0077
Wt. Comp. Soil + Mold (gm.)	632.9	653.7
Wt. of Mold (gm.)	208.5	208.5
Specific Gravity (Assumed)	2.70	2.70
Container No.	6	6
Wet Wt. of Soil + Cont. (gm.)	455.7	653.7
Dry Wt. of Soil + Cont. (gm.)	433.7	393.3
Wt. of Container (gm.)	155.7	208.5
Moisture Content (%)	7.9	13.2
Wet Density (pcf)	128.0	133.3
Dry Density (pcf)	118.6	117.7
Void Ratio	0.421	0.432
Total Porosity	0.296	0.302
Pore Volume (cc)	61.3	62.9
Degree of Saturation (%) [S meas]	**50.7**	**82.5**

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h.

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
4/8/16	10:00	1.0	0	0.5000
4/8/16	10:10	1.0	10	0.5000
	Add Distilled Water to the Specimen			
4/9/16	7:00	1.0	1250	0.5077
4/9/16	8:00	1.0	1310	0.5077

Expansion Index (EI meas) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	7.7
Expansion Index (Report) = Nearest Whole Number or Zero (0) if Initial Height is > than Final Height	**8**

Leighton

R-VALUE TEST RESULTS

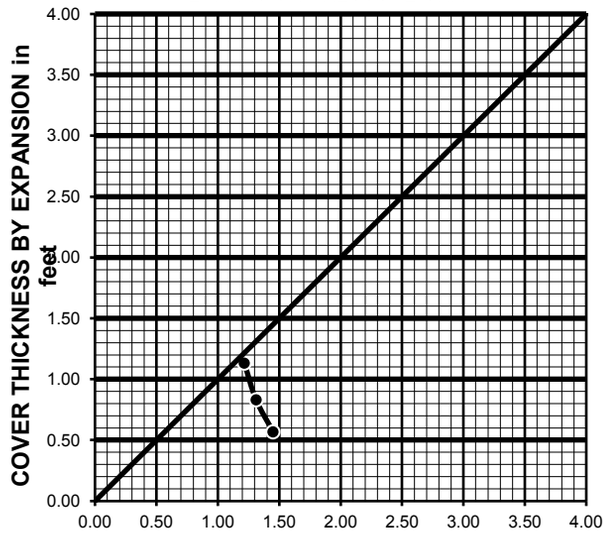
ASTM D 2844

Project Name:	BUSD-Grid Rd HS	Date:	4/11/16
Project Number:	11279.001	Technician:	M. Vinet
Boring Number:	LB-2	Depth (ft.):	0 - 5.0
Sample Number:	B-1	Sample Location:	N/A
Sample Description:	Sandy Lean Clay s(CL), brown.		

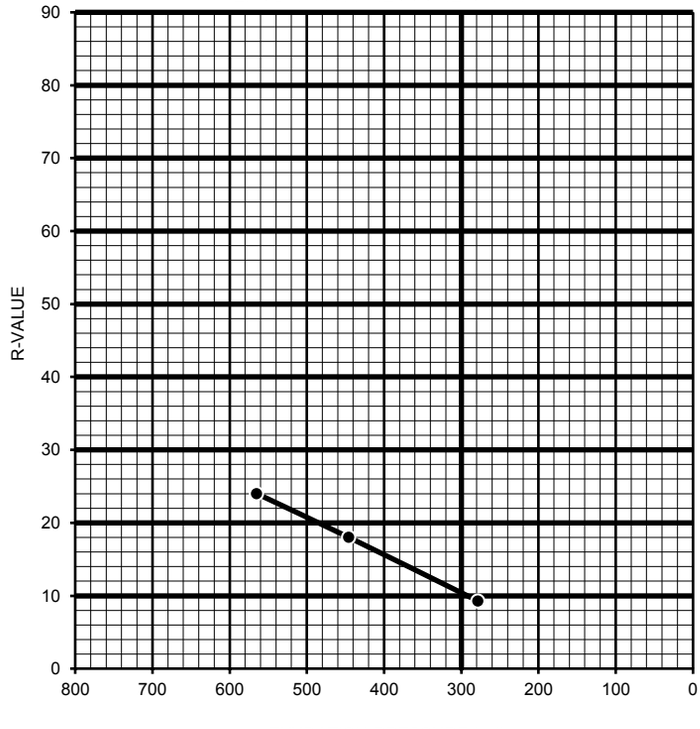
TEST SPECIMEN	A	B	C
MOISTURE AT COMPACTION %	12.2	13.3	14.3
HEIGHT OF SAMPLE, Inches	2.43	2.52	2.54
DRY DENSITY, pcf	122.3	118.4	115.2
COMPACTOR AIR PRESSURE, psi	125	95	70
EXUDATION PRESSURE, psi	565	446	278
EXPANSION, Inches x 10exp-4	30	22	15
STABILITY Ph 2,000 lbs (160 psi)	112	120	137
TURNS DISPLACEMENT	3.30	3.77	4.10
R-VALUE UNCORRECTED	25	18	9
R-VALUE CORRECTED	24	18	9

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	1.22	1.31	1.45
EXPANSION PRESSURE THICKNESS, ft.	1.13	0.83	0.57

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	25
R-VALUE BY EXUDATION:	10
EQUILIBRIUM R-VALUE:	10

Rev. 08-04

Leighton

R-VALUE TEST RESULTS

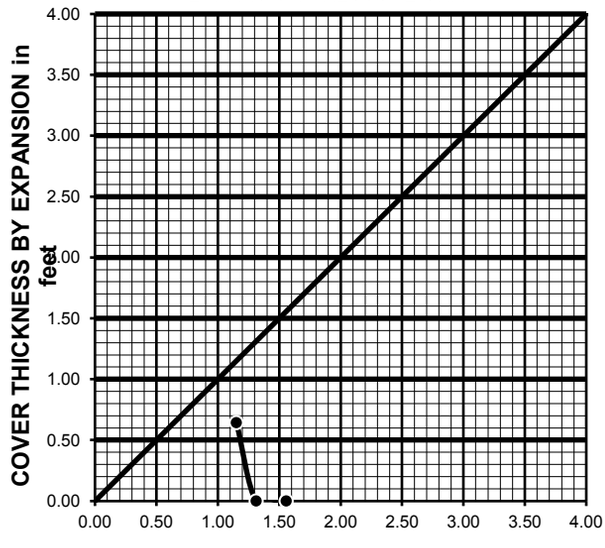
ASTM D 2844

Project Name:	BUSD-Grid Rd HS	Date:	4/11/16
Project Number:	11279.001	Technician:	M. Vinet
Boring Number:	LB-5	Depth (ft.):	0 - 5.0
Sample Number:	B-1	Sample Location:	N/A
Sample Description:	Silty Sand (SM), brown.		

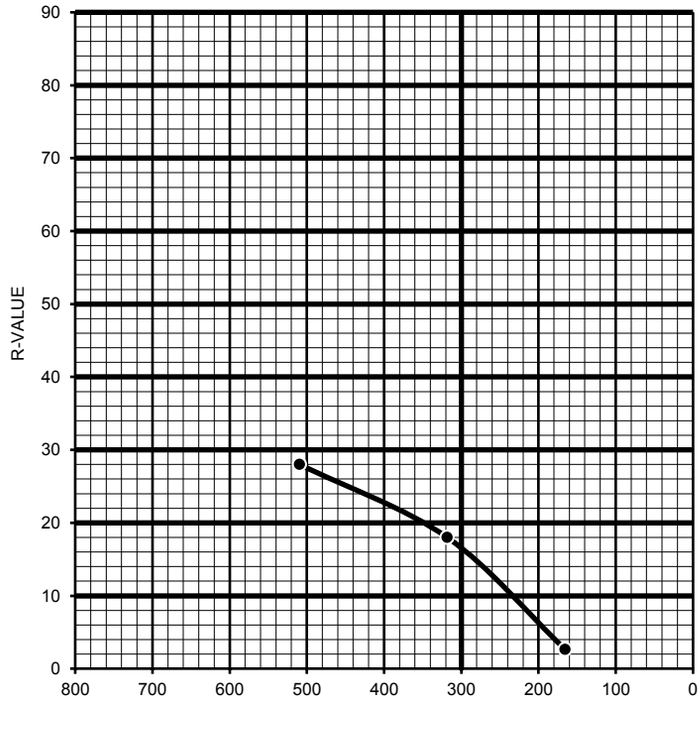
TEST SPECIMEN	A	B	C
MOISTURE AT COMPACTION %	9.6	10.7	12.8
HEIGHT OF SAMPLE, Inches	2.43	2.57	2.51
DRY DENSITY, pcf	130.7	127.5	122.0
COMPACTOR AIR PRESSURE, psi	250	120	25
EXUDATION PRESSURE, psi	509	318	165
EXPANSION, Inches x 10exp-4	17	0	0
STABILITY Ph 2,000 lbs (160 psi)	96	120	152
TURNS DISPLACEMENT	3.80	4.10	4.82
R-VALUE UNCORRECTED	30	17	3
R-VALUE CORRECTED	28	18	3

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	1.15	1.31	1.56
EXPANSION PRESSURE THICKNESS, ft.	0.64	0.00	0.00

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	34
R-VALUE BY EXUDATION:	17
EQUILIBRIUM R-VALUE:	17

Leighton

PARTICLE-SIZE DISTRIBUTION (GRADATION) of SOILS USING SIEVE ANALYSIS

ASTM D 6913

Project Name:	BUSD-Grid Rd HS		Tested By:	AJH	Date: 04/08/16
Project No.:	11279.001		Checked By:	MRV	Date: 04/13/16
Exploration No.:	LB-1		Depth (feet):	50.0	
Sample No.:	S-5				
Soil Identification:	Sandy Silty Clay s(CL-ML), brown.				

		Moisture Content of Total Air - Dry Soil	
Container No.:	123	Wt. of Air-Dry Soil + Cont. (g)	1007.7
Wt. of Air-Dried Soil + Cont.(g)	1007.7	Wt. of Dry Soil + Cont. (g)	1007.7
Wt. of Container (g)	699.7	Wt. of Container No._____ (g)	699.7
Dry Wt. of Soil (g)	308.0	Moisture Content (%)	0.0

After Wet Sieve	Container No.	123
	Wt. of Dry Soil + Container (g)	848.6
	Wt. of Container (g)	699.7
	Dry Wt. of Soil Retained on # 200 Sieve (g)	148.9

U. S. Sieve Size (in.)	U. S. Sieve Size (mm.)	Cumulative Weight Dry Soil Retained (g)	Percent Passing (%)
3"	75.000		100.0
1"	25.000		100.0
3/4"	19.000		100.0
1/2"	12.500		100.0
3/8"	9.500		100.0
#4	4.750	0.0	100.0
#8	2.360	3.9	98.7
#16	1.180	9.6	96.9
#30	0.600	20.0	93.5
#50	0.300	42.3	86.3
#100	0.150	83.6	72.9
#200	0.075	144.0	53.2
PAN			

GRAVEL: **0 %**

SAND: **47 %**

FINES: **53 %**

GROUP SYMBOL: **s(CL-ML)**

Cu = D60/D10 = N/A

Cc = $(D30)^2/(D60*D10)$ = N/A

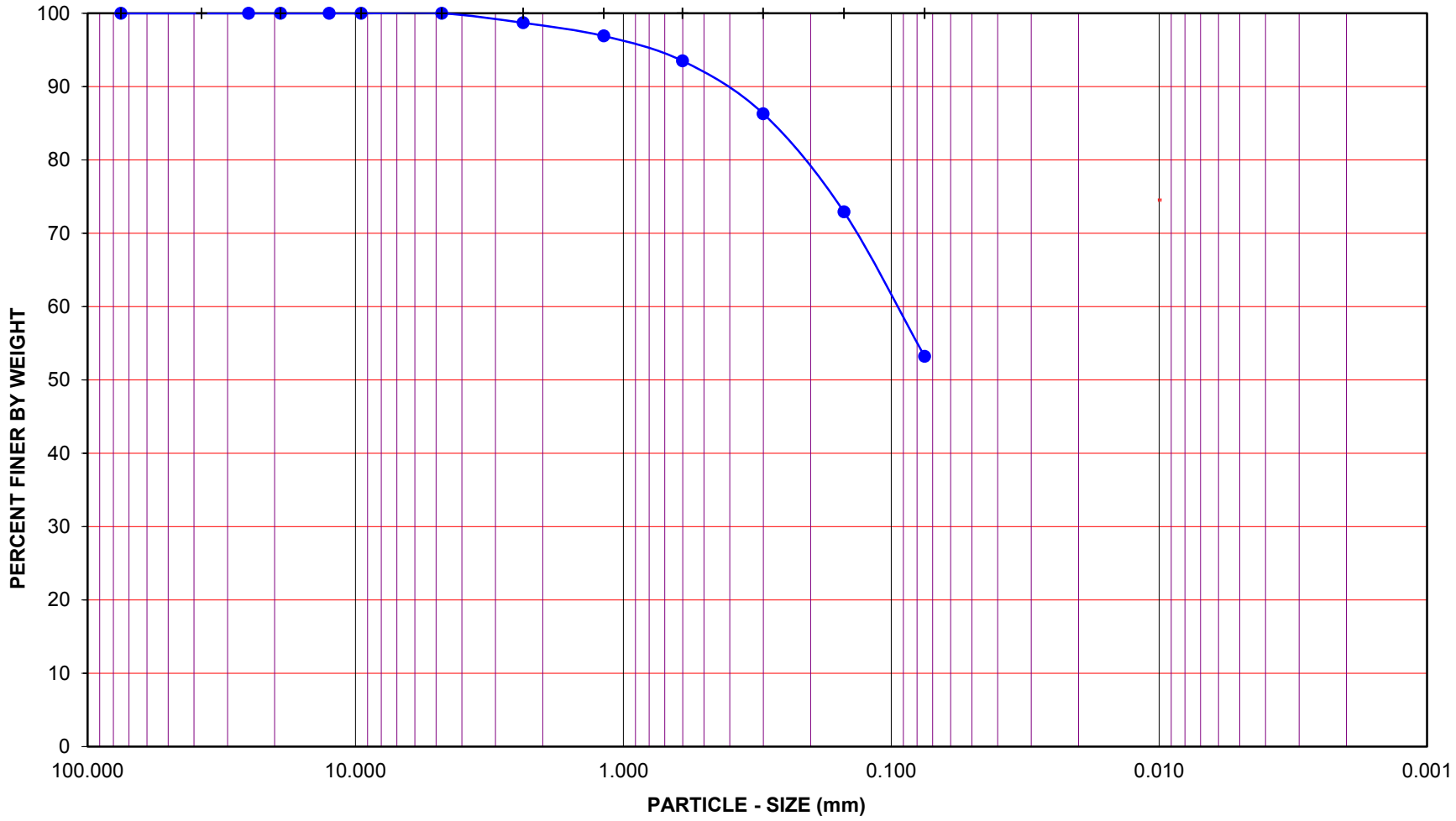
Remarks:

GRAVEL		SAND			FINES	
COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

U.S. STANDARD SIEVE OPENING: 3.0" 1 1/2" 3/4" 3/8"

U.S. STANDARD SIEVE NUMBER: #4 #8 #16 #30 #50 #100 #200

HYDROMETER



Project Name: BUSD-Grid Rd HS

Project No.: 11279.001

Exploration No.: LB-1 Sample No.: S-5

Depth (feet): 50.0 Soil Type : s(CL-ML)

Soil Identification: Sandy Silty Clay s(CL-ML), brown.

GR:SA:FI : (%) 0 : 47 : 53

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 6913

Apr-16

Boring No.	LB-1	LB-1	LB-1					
Sample No.	S-1	S-2	S-4					
Depth (ft.)	20.0	30.0	45.0					
Sample Type	SPT	SPT	SPT					
Visual Soil Classification	SM	(CL)s	SM					
Moisture Correction								
Wet Weight of Soil + Container (gm.)	985.7	981.5	1022.8					
Dry Weight of Soil + Container (gm.)	985.7	981.5	1022.8					
Weight of Container (gm)	666.3	673.0	699.8					
Moisture Content (%)	0.0	0.0	0.0					
Container No.:	M	B	123					
Sample Dry Weight Determination								
Weight of Sample + Container (gm.)	985.7	981.5	1022.8					
Weight of Container (gm.)	666.3	673.0	699.8					
Weight of Dry Sample (gm.)	319.4	308.5	323.0					
Container No.:	M	B	123					
After Wash								
Dry Weight of Sample + Container (gm)	868.6	762.6	911.3					
Weight of Container (gm)	666.3	673.0	699.8					
Dry Weight of Sample (gm)	202.3	89.6	211.5					
% Passing No. 200 Sieve	**37**	**71**	**35**					
% Retained No. 200 Sieve	63	29	65					

PERCENT PASSING No. 200 SIEVE
ASTM D 1140

Leighton

Project Name: BUSD-Grid Rd HS

Project No.: 11279.001

Client Name: Bonsall Unified School District

Tested By: A. Hill Date: 4/7/16

Rev. 08-04

Leighton

ATTERBERG LIMITS

ASTM D 4318

Project Name:	BUSD-Grid Rd HS	Tested By:	M. Vinet	Date:	4/13/16
Project No. :	11279.001	Input By:	M. Vinet	Date:	4/13/16
Boring No.:	LB-1	Checked By:	M. Vinet	Date:	4/13/16
Sample No.:	S-1	Depth (ft.)	20.0		
Sample Description:	Silty Sand (SM), brown.				

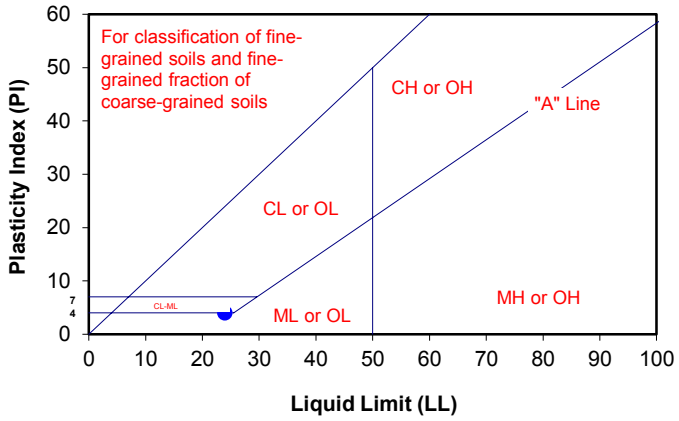
	PLASTIC LIMIT		LIQUID LIMIT			**IN-SITU
TEST NO.	1	2	1	2	3	MOISTURE
Number of Blows [N]			15	21	29	
Wet Wt. of Soil + Cont. (gm)	24.770	22.782	28.250	29.780	24.516	**
Dry Wt. of Soil + Cont. (gm)	22.947	21.311	25.345	26.670	22.441	**
Wt. of Container (gm)	13.801	13.640	13.531	13.574	13.532	**
Moisture Content (%) [Wn]	19.9	19.2	24.6	23.7	23.3	**

Liquid Limit	**24**
Plastic Limit	**20**
Plasticity Index	**4**
Classification	**ML**

PI at "A" - Line = 0.73(LL-20) = 2.92

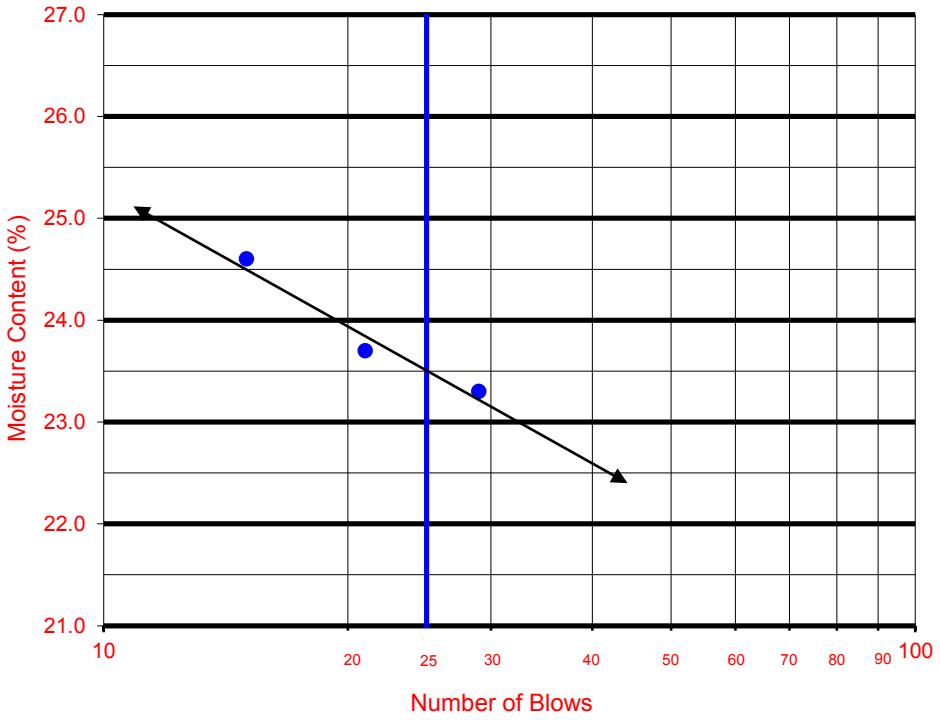
One - Point Liquid Limit Calculation

LL =Wn(N/25) $^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



Leighton

ATTERBERG LIMITS

ASTM D 4318

Project Name:	BUSD-Grid Rd HS	Tested By:	M. Vinet	Date:	4/13/16
Project No. :	11279.001	Input By:	M. Vinet	Date:	4/13/16
Boring No.:	LB-1	Checked By:	M. Vinet	Date:	4/13/16
Sample No.:	S-5	Depth (ft.)	50.0		
Sample Description:	Sandy Silty Clay s(CL-ML), brown.				

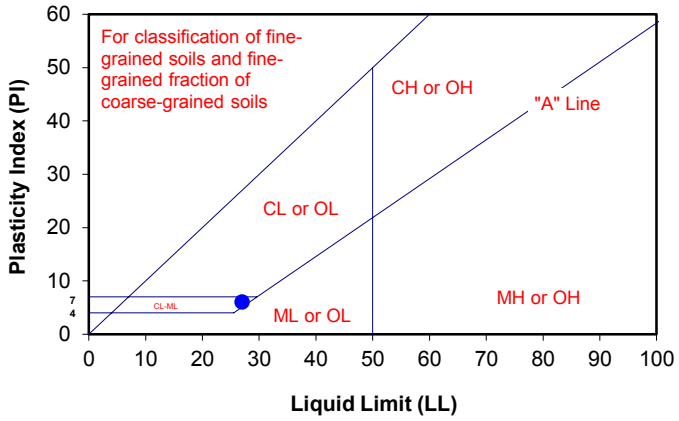
	PLASTIC LIMIT		LIQUID LIMIT			**IN-SITU
TEST NO.	1	2	1	2	3	MOISTURE
Number of Blows [N]			15	23	33	
Wet Wt. of Soil + Cont. (gm)	19.672	21.693	36.646	31.725	32.100	**
Dry Wt. of Soil + Cont. (gm)	18.604	20.285	31.572	27.858	28.367	**
Wt. of Container (gm)	13.632	13.679	13.648	13.629	14.041	**
Moisture Content (%) [Wn]	21.5	21.3	28.3	27.2	26.1	**

Liquid Limit	**27**
Plastic Limit	**21**
Plasticity Index	**6**
Classification	**CL-ML**

PI at "A" - Line = 0.73(LL-20) = 5.11

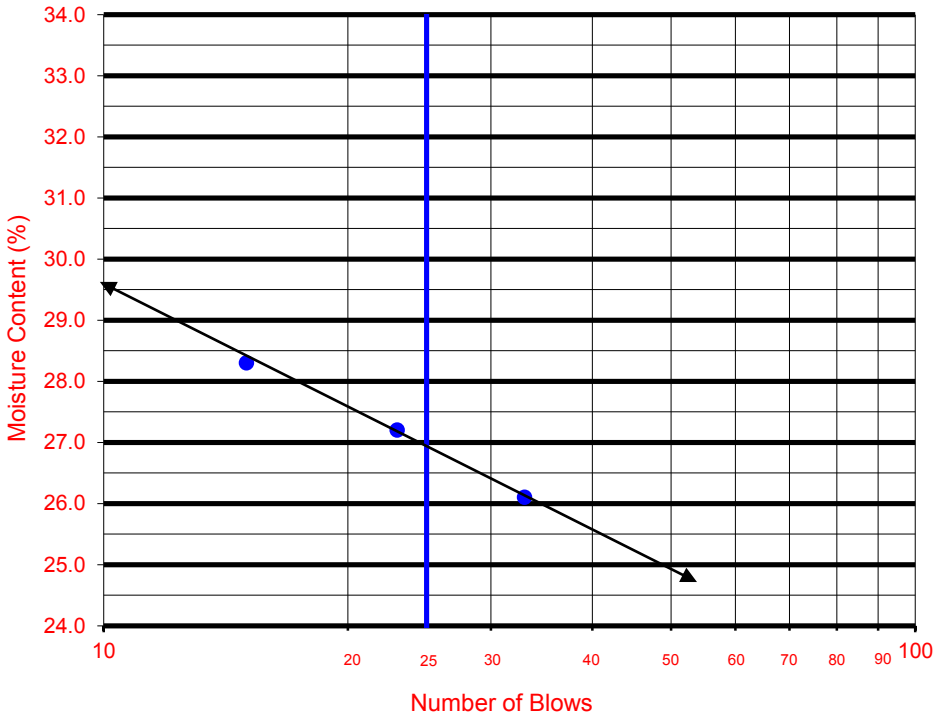
One - Point Liquid Limit Calculation

LL =Wn(N/25) $^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [X] Dry Preparation
  Multipoint - Dry
- [X] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



Leighton

One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546) -- Method 'B'

Project Name: BUSD-Grid Rd HS
Project No.: 11279.001
Boring No.: **LB-1**
Sample No.: **R-1**
Sample Description: Silty Sand (SM), brown.

Tested By: M. Vinet Date: 4/8/16
Checked By: M. Vinet Date: 4/13/16
Sample Type: IN SITU
Depth (ft.) 2.5

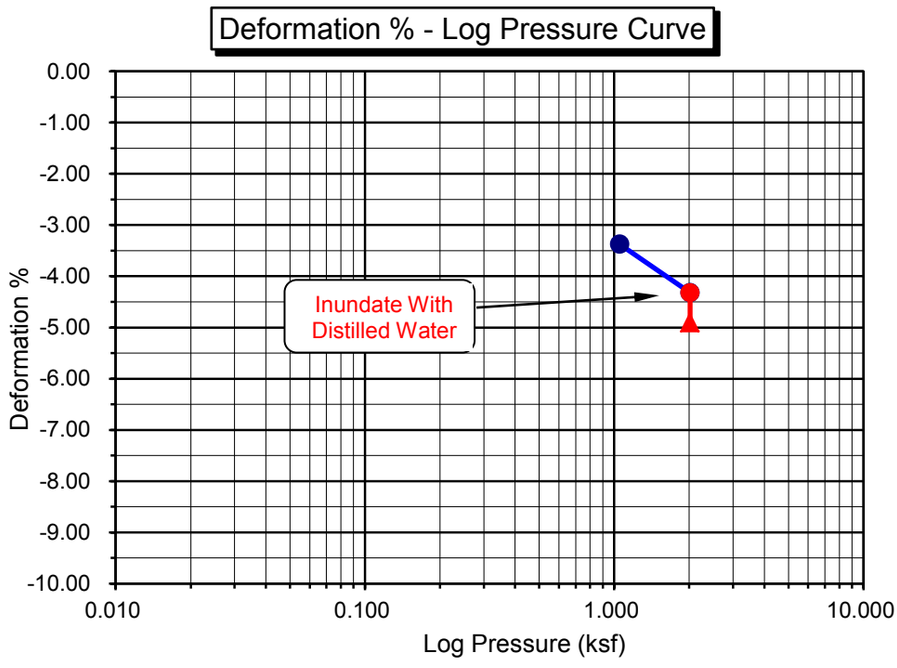
Source and Type of Water Used for Inundation: Arrowhead (Distilled)
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

Initial Dry Density (pcf):	107.7
Initial Moisture (%):	12.6
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0500
Inside Diameter of Ring (in):	2.416

Final Dry Density (pcf):	113.3
Final Moisture (%) :	18.4
Initial Void ratio:	0.5651
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	60.0

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0837	0.9663	0.00	-3.37	0.5124	-3.37
2.013	0.0932	0.9568	0.00	-4.32	0.4975	-4.32
H2O	0.0991	0.9509	0.00	-4.91	0.4883	-4.91

Percent Swell / Settlement After Inundation = -0.62



Leighton

One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546) -- Method 'B'

Project Name: BUSD-Grid Rd HS
Project No.: 11279.001
Boring No.: **LB-3**
Sample No.: **R-1**
Sample Description: Silty Sand (SM), brown.

Tested By: M. Vinet Date: 4/8/16
Checked By: M. Vinet Date: 4/13/16
Sample Type: IN SITU
Depth (ft.) 2.5

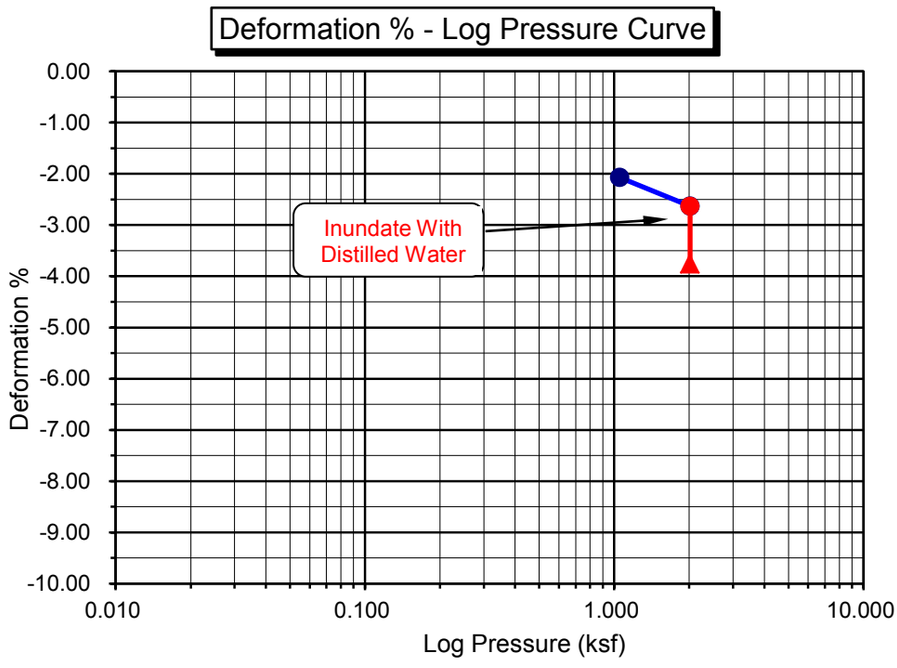
Source and Type of Water Used for Inundation: Arrowhead (Distilled)
** Note: Loading After Wetting (Inundation) not Performed Using this Test Method.

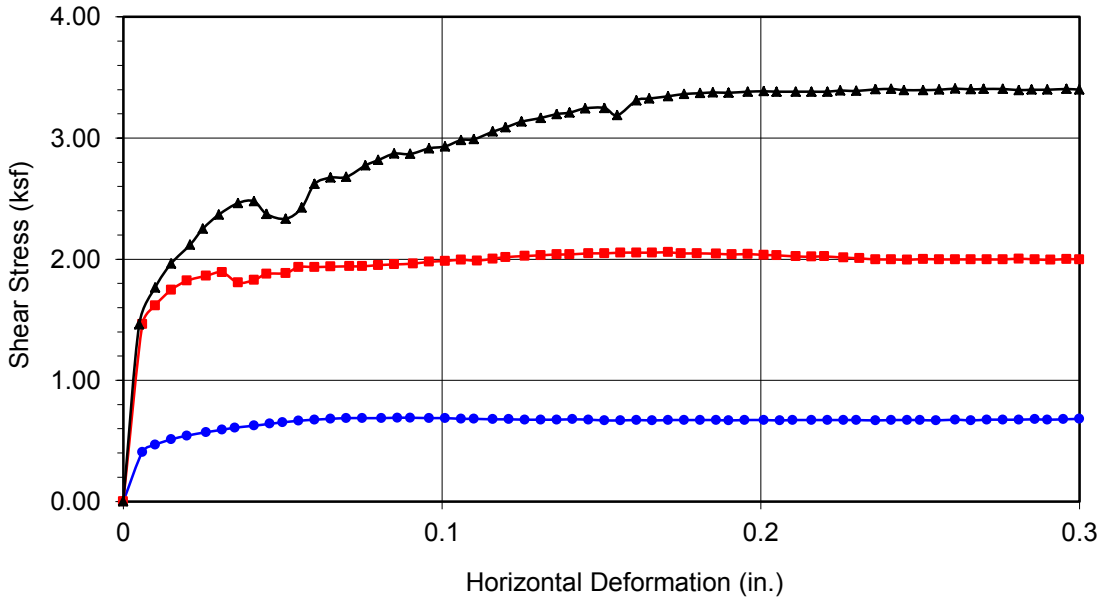
Initial Dry Density (pcf):	117.9
Initial Moisture (%):	8.2
Initial Height (in.):	1.0000
Initial Dial Reading (in):	0.0500
Inside Diameter of Ring (in):	2.416

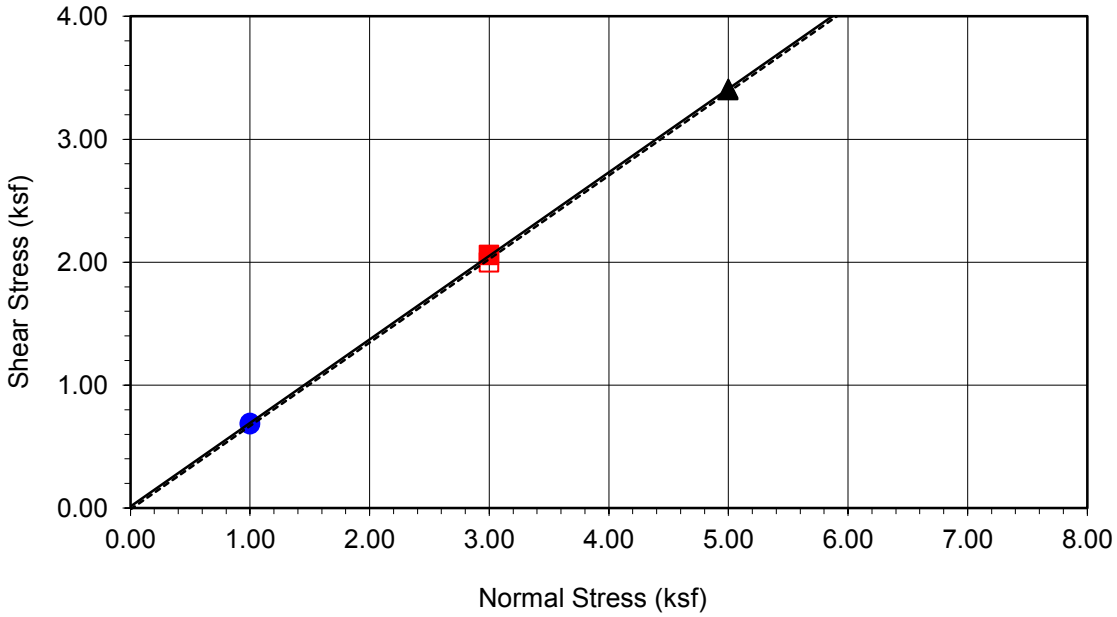
Final Dry Density (pcf):	122.5
Final Moisture (%) :	13.5
Initial Void ratio:	0.4295
Specific Gravity (assumed):	2.70
Initial Degree of Saturation (%):	51.7

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
1.050	0.0707	0.9793	0.00	-2.07	0.3999	-2.07
2.013	0.0763	0.9737	0.00	-2.63	0.3919	-2.63
H2O	0.0876	0.9624	0.00	-3.76	0.3757	-3.76

Percent Swell / Settlement After Inundation = -1.16







Boring No.	**LB-7**
Sample No.	**B-1**
Depth (ft)	**0 - 5.0**
Sample Type:	REMOLD
Soil Identification:	Silty Sand (SM), brown.

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	14	34
Ultimate	-11	34

Normal Stress (kip/ft²)	1.000	3.000	5.000
Peak Shear Stress (kip/ft²)	● 0.691	■ 2.057	▲ 3.408
Shear Stress @ End of Test (ksf)	○ 0.682	□ 1.998	△ 3.399
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	7.00	6.73	6.73
Dry Density (pcf)	122.7	123.0	123.0
Saturation (%)	50.5	49.0	49.0
Soil Height Before Shearing (in.)	0.9880	0.9875	0.9710
Final Moisture Content (%)	12.9	12.6	12.8

Leighton

DIRECT SHEAR TEST RESULTS

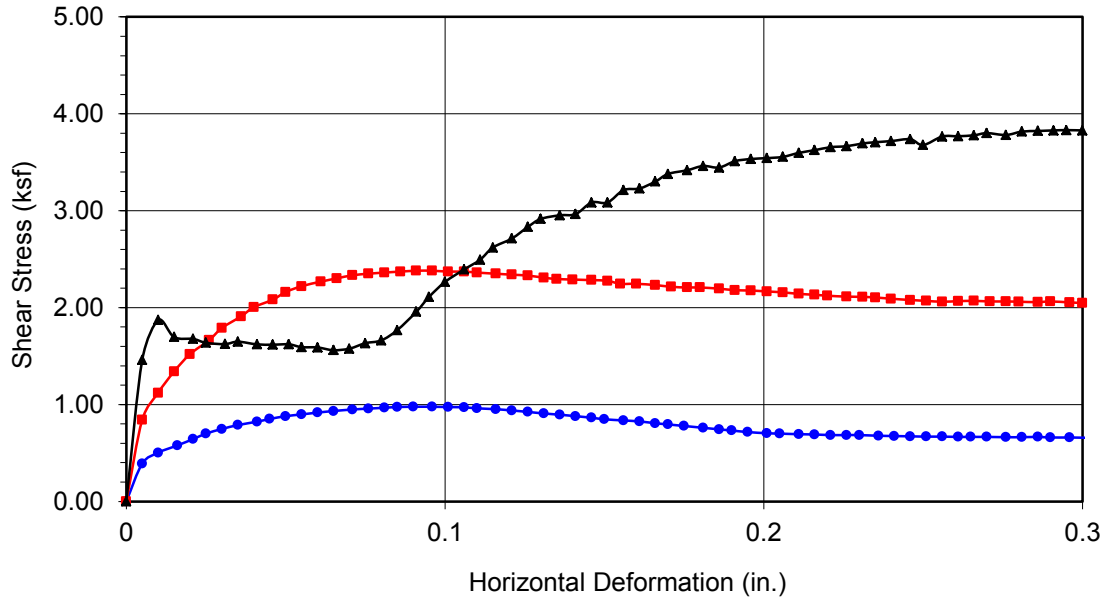
Consolidated Drained - ASTM D 3080

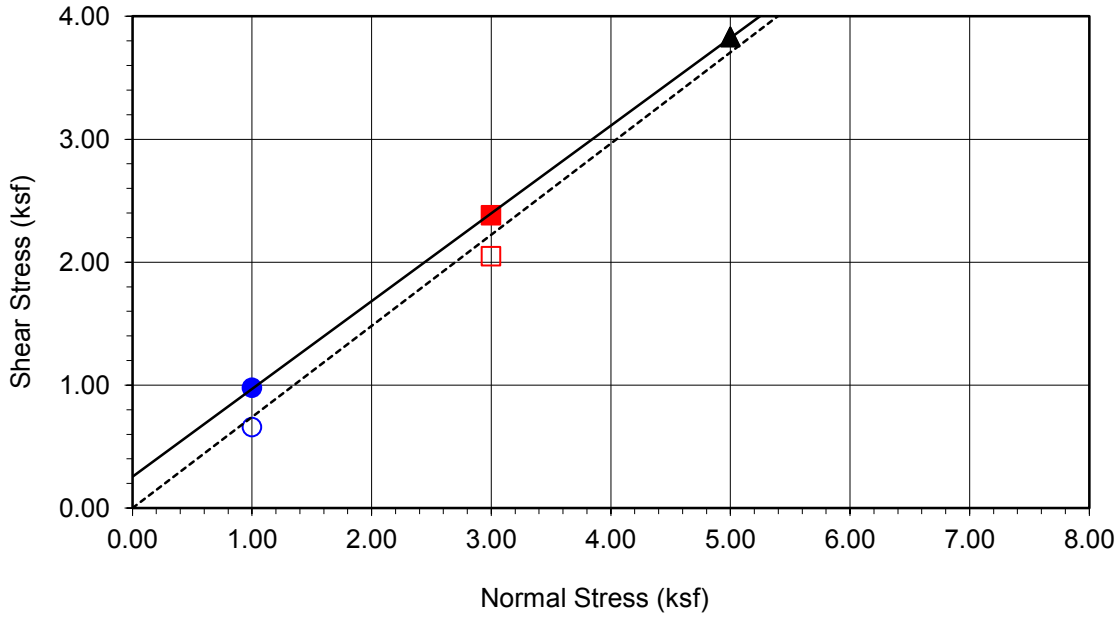
Project No.: 11279.001

BUSD-Grid Rd HS

04-16

Remold Shear; LB-7, B-1 (3-29-16)





Boring No.	**LB-8**
Sample No.	**R-1**
Depth (ft)	**5**
Sample Type:	Ring
Soil Identification:	Silty Sand (SM), brown.

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	255	36
Ultimate	0	37

Normal Stress (kip/ft²)	1.000	3.000	5.000
Peak Shear Stress (kip/ft²)	● 0.977	■ 2.381	▲ 3.832
Shear Stress @ End of Test (ksf)	○ 0.657	□ 2.048	△ 3.829
Deformation Rate (in./min.)	0.0033	0.0033	0.0033
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	7.26	7.26	7.26
Dry Density (pcf)	112.4	116.9	120.1
Saturation (%)	39.2	44.3	48.6
Soil Height Before Shearing (in.)	0.9675	0.9660	0.9650
Final Moisture Content (%)	16.4	14.4	15.0

Leighton

DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 11279.001

BUSD-Grid Rd HS

04-16

Leighton

TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: BUSD/Gird Road HS Tested By : G. Berdy Date: 04/08/16

Project No. : 11279.001 Data Input By: J. Ward Date: 04/12/16

Boring No.	LB-3	LB-8		
Sample No.	B-1	R-1		
Sample Depth (ft)	0-5	5.0		
Soil Identification:	Dark brown SC	Dark brown SM		
Wet Weight of Soil + Container (g)	218.32	106.13		
Dry Weight of Soil + Container (g)	208.34	104.17		
Weight of Container (g)	57.76	67.18		
Moisture Content (%)	6.63	5.30		
Weight of Soaked Soil (g)	100.04	100.36		

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	27	51		
Crucible No.	23	20		
Furnace Temperature (°C)	860	860		
Time In / Time Out	10:00/10:40	10:00/10:40		
Duration of Combustion (min)	40	40		
Wt. of Crucible + Residue (g)	18.4286	21.2352		
Wt. of Crucible (g)	18.4266	21.2338		
Wt. of Residue (g) (A)	0.0020	0.0014		
PPM of Sulfate (A) x 41150	82.30	57.61		
PPM of Sulfate, Dry Weight Basis	**88**	**61**		

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	15	15		
ml of AgNO3 Soln. Used in Titration (C)	0.6	0.5		
PPM of Chloride (C -0.2) * 100 * 30 / B	80	60		
PPM of Chloride, Dry Wt. Basis	**86**	**63**		

pH TEST, DOT California Test 643

pH Value	**6.39**	**7.49**		
Temperature °C	22.0	21.9		

Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	BUSD/Gird Road HS		Tested By :	G. Berdy	Date: 04/08/16
Project No. :	11279.001		Data Input By:	J. Ward	Date: 04/12/16
Boring No.:	LB-3		Depth (ft.) :	0-5	
Sample No. :	B-1				

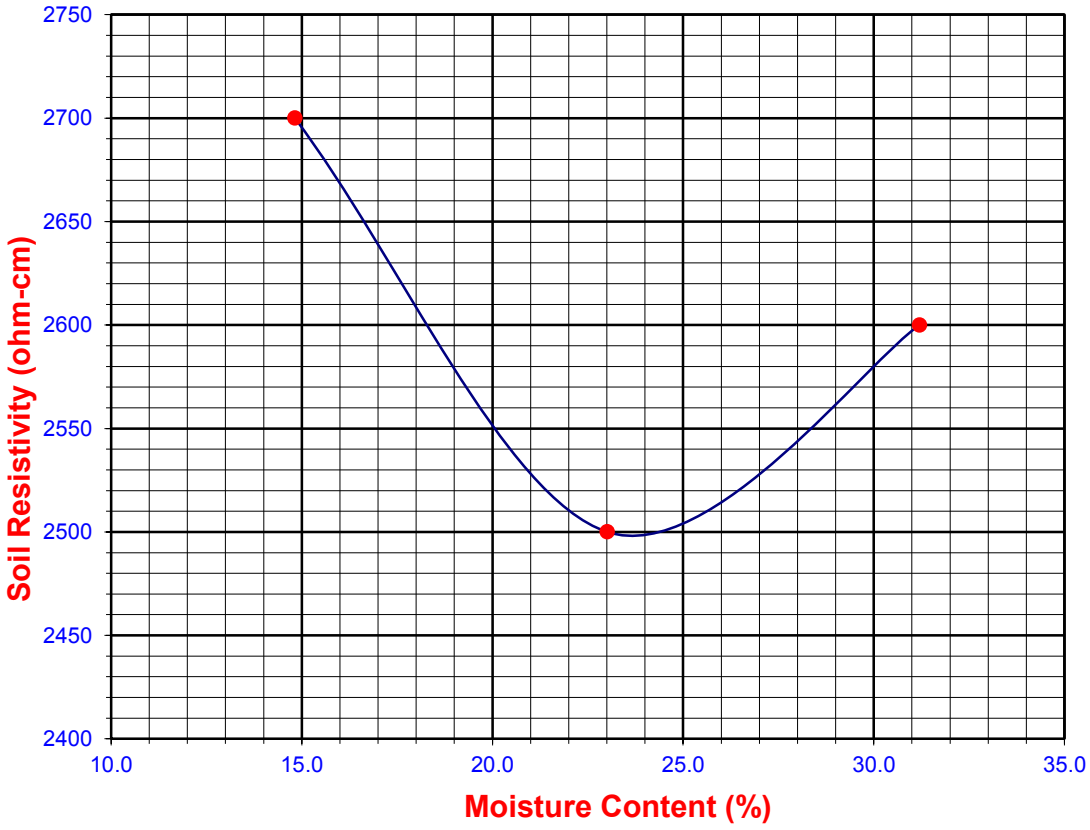
Soil Identification:* Dark brown SC

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	10	14.82	2700	2700
2	20	23.01	2500	2500
3	30	31.20	2600	2600
4				
5				

Moisture Content (%) (MCi)	6.63
Wet Wt. of Soil + Cont. (g)	218.32
Dry Wt. of Soil + Cont. (g)	208.34
Wt. of Container (g)	57.76
Container No.	
Initial Soil Wt. (g) (Wt)	130.17
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
2498	**23.7**	**88**	**86**	**6.39**	**22.0**



Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 643

Project Name:	BUSD/Gird Road HS		Tested By :	G. Berdy	Date: 04/11/16
Project No. :	11279.001		Data Input By:	J. Ward	Date: 04/12/16
Boring No.:	LB-8		Depth (ft.) :	5.0	
Sample No. :	R-1				

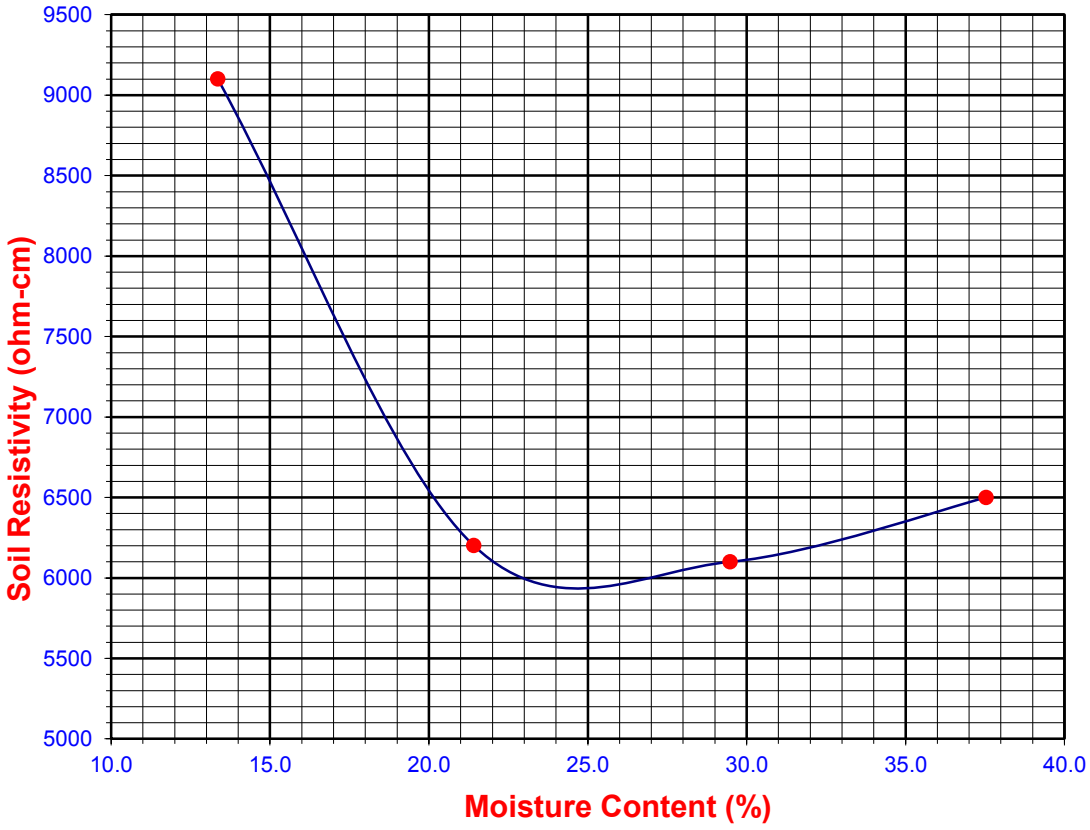
Soil Identification:* Dark brown SM

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	10	13.36	9100	9100
2	20	21.42	6200	6200
3	30	29.48	6100	6100
4	40	37.54	6500	6500
5				

Moisture Content (%) (MCi)	5.30
Wet Wt. of Soil + Cont. (g)	106.13
Dry Wt. of Soil + Cont. (g)	104.17
Wt. of Container (g)	67.18
Container No.	
Initial Soil Wt. (g) (Wt)	130.65
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
5930	**24.7**	**61**	**63**	**7.49**	**21.9**



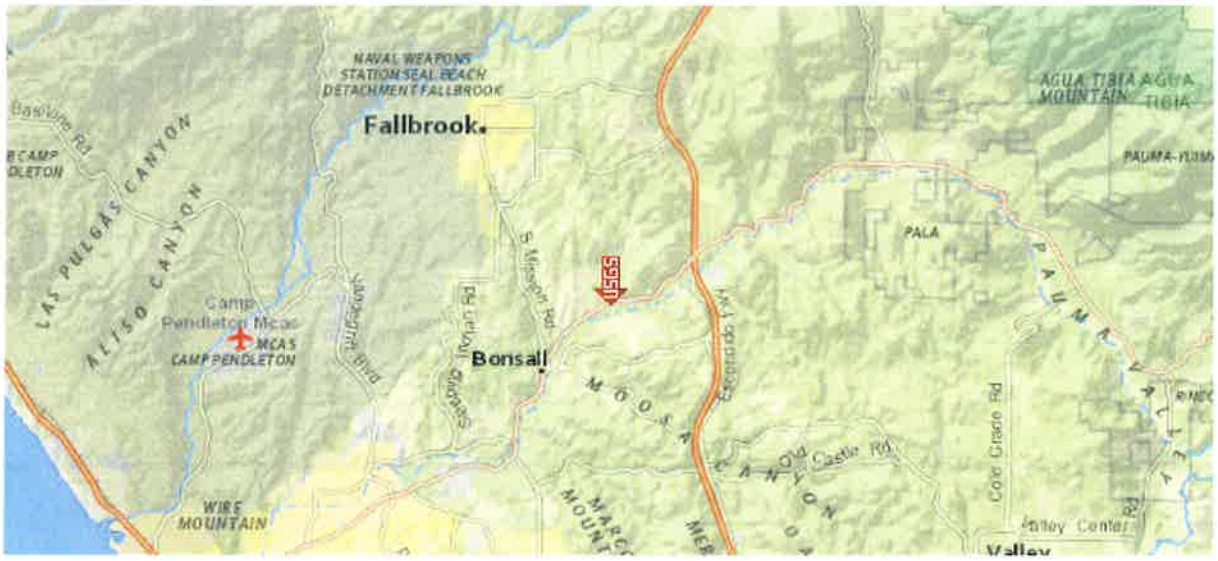
APPENDIX C

LIQUEFACTION ANALYSIS

USGS Design Maps Summary Report

User-Specified Input

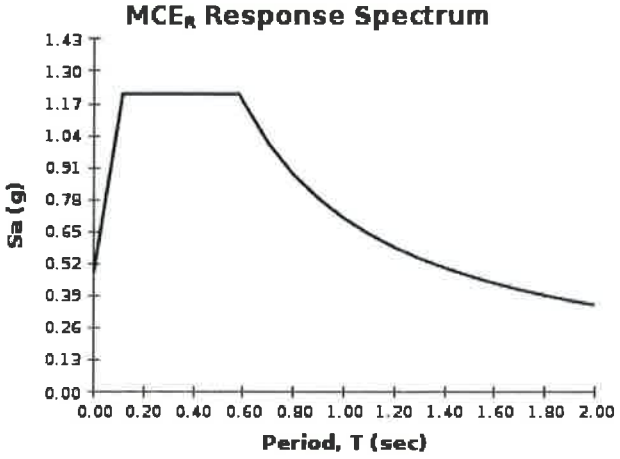
Report Title	BUSD Gird Road Fri April 1, 2016 15:47:54 UTC
Building Code Reference Document	ASCE 7-10 Standard (which utilizes USGS hazard data available in 2008)
Site Coordinates	33.3221°N, 117.196°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

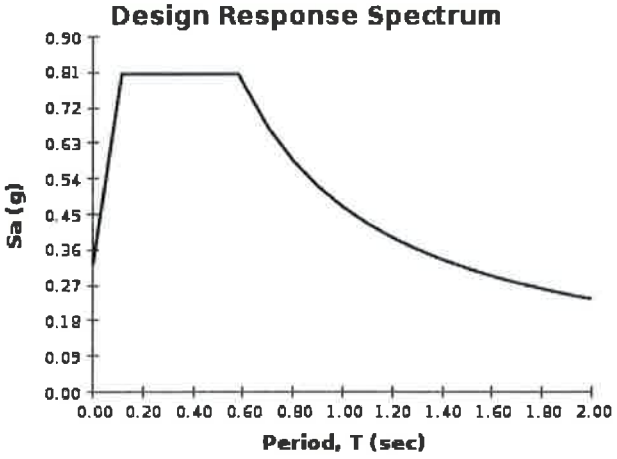


USGS-Provided Output

S_S =	1.171 g	S_{MS} =	1.208 g	S_{DS} =	0.806 g
S_1 =	0.456 g	S_{M1} =	0.704 g	S_{D1} =	0.469 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

USGS Design Maps Detailed Report

ASCE 7-10 Standard (33.3221°N, 117.196°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1]	S_S = 1.171 g
From Figure 22-2 [2]	S_1 = 0.456 g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\bar{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients and Risk-Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4-1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_S

For Site Class = D and S_s = 1.171 g, F_a = 1.031

Table 11.4-2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1-s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.456 g, F_v = 1.544

Equation (11.4–1): $S_{MS} = F_a S_S = 1.031 \times 1.171 = 1.208$ g

Equation (11.4–2): $S_{M1} = F_v S_1 = 1.544 \times 0.456 = 0.704$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

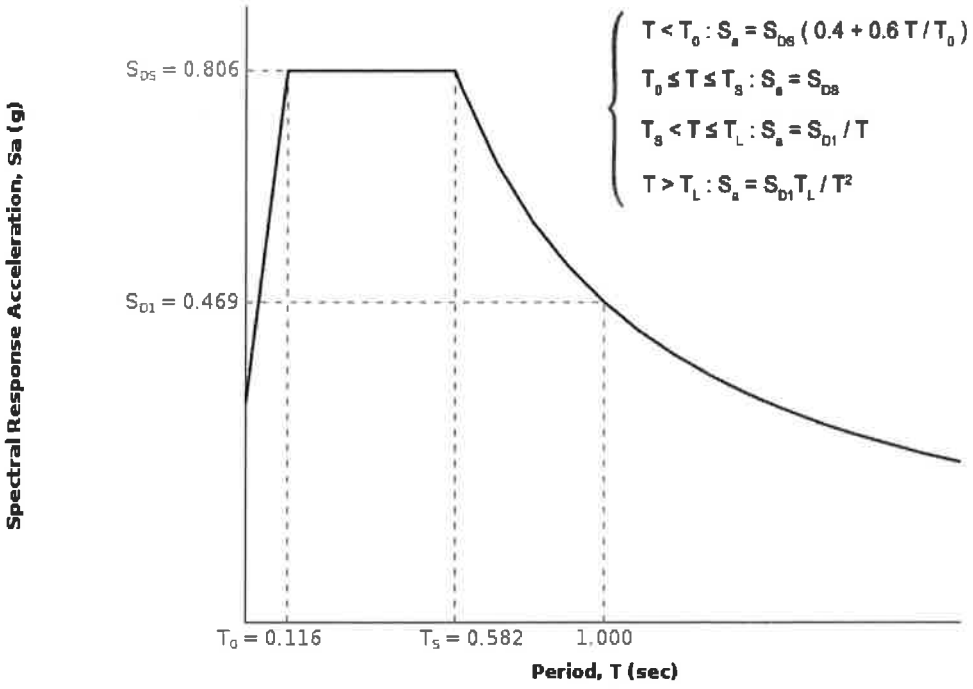
Equation (11.4–3): $S_{DS} = \frac{2}{3} S_{MS} = \frac{2}{3} \times 1.208 = 0.806$ g

Equation (11.4–4): $S_{D1} = \frac{2}{3} S_{M1} = \frac{2}{3} \times 0.704 = 0.469$ g

Section 11.4.5 — Design Response Spectrum

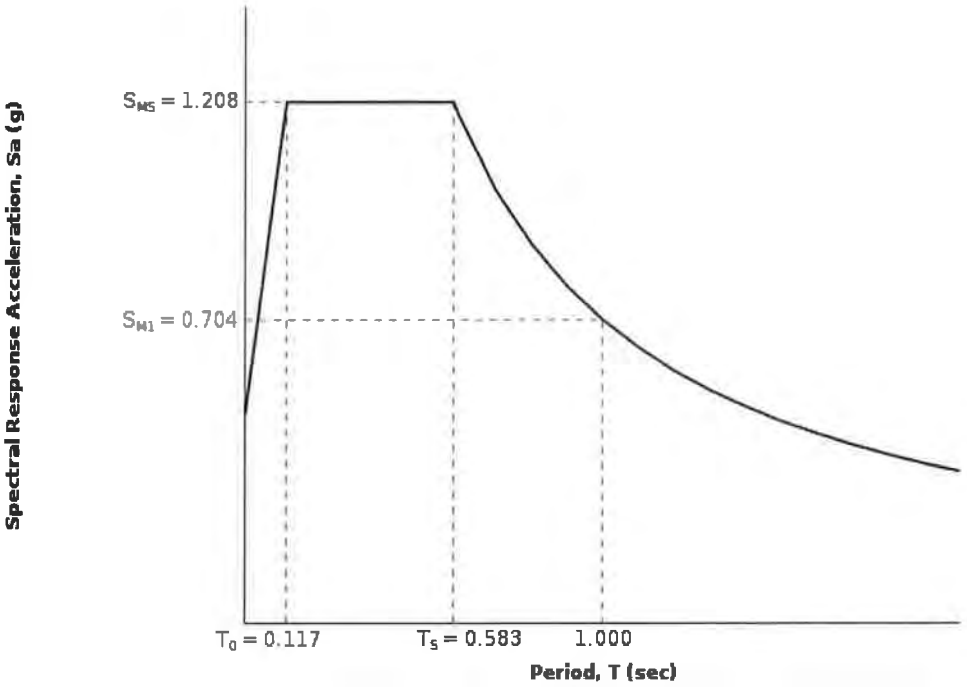
From Figure 22-12 [3] $T_L = 8$ seconds

Figure 11.4–1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 0.438

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 1.062 \times 0.438 = 0.465$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of PGA

For Site Class = D and PGA = 0.438 g, F_{PGA} = 1.062

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 1.021

From Figure 22-18 [6] C_{R1} = 1.046

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \le S_{DS} < 0.33g$	B	B	C
$0.33g \le S_{DS} < 0.50g$	C	C	D
$0.50g \le S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 0.806 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \le S_{D1} < 0.133g$	B	B	C
$0.133g \le S_{D1} < 0.20g$	C	C	D
$0.20g \le S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.469 g, Seismic Design Category = D

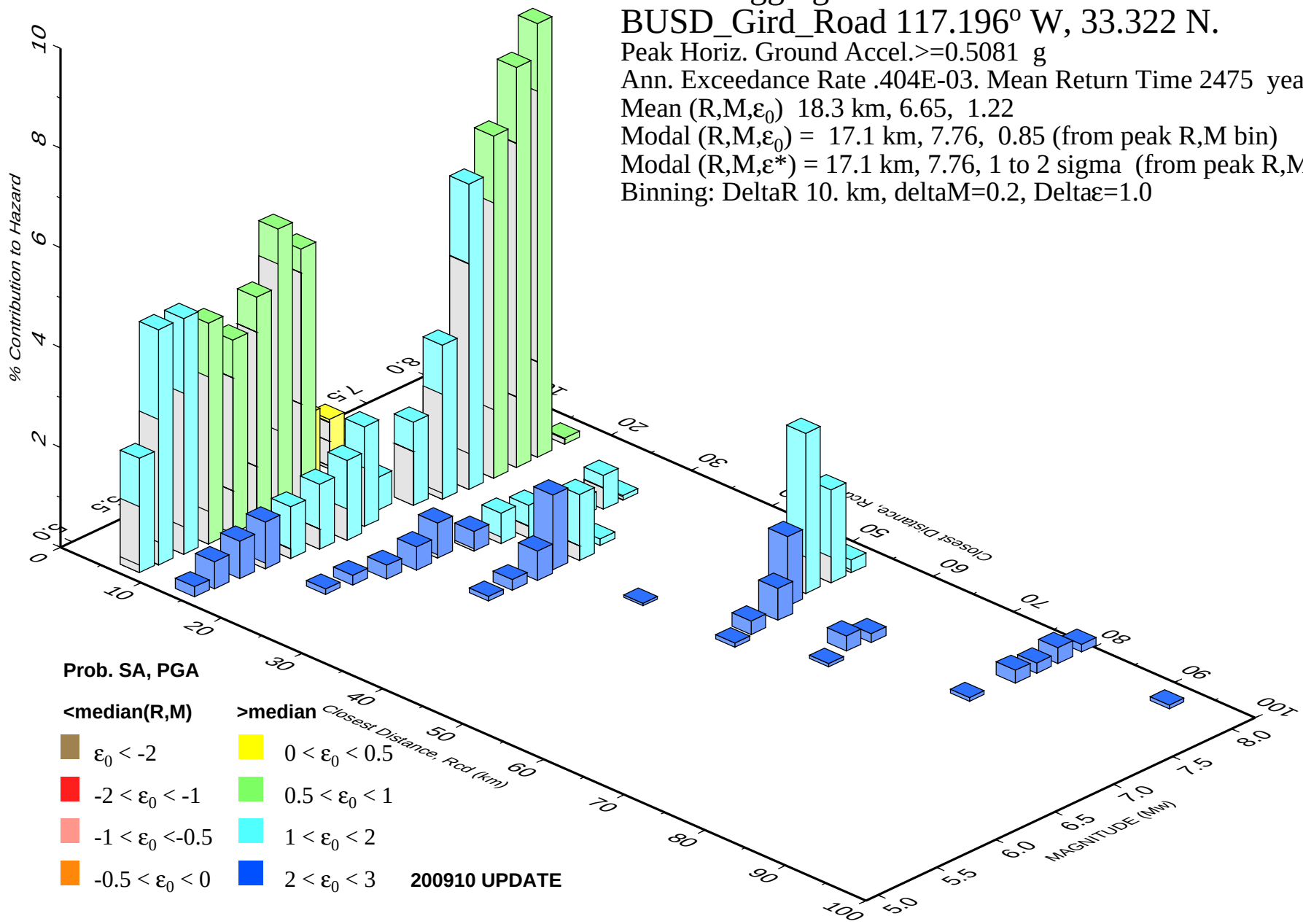
Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = D

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf



PSH Deaggregation on NEHRP D soil

BUSD_Gird_Road 117.196º W, 33.322 N.

Peak Horiz. Ground Accel.>=0.5081 g

Ann. Exceedance Rate .404E-03. Mean Return Time 2475 years

Mean (R,M,ε_0) 18.3 km, 6.65, 1.22

Modal (R,M,ε_0) = 17.1 km, 7.76, 0.85 (from peak R,M bin)

Modal (R,M,ε*) = 17.1 km, 7.76, 1 to 2 sigma (from peak R,M,ε bin)

Binning: DeltaR 10. km, deltaM=0.2, Deltaε=1.0

DRY SETTLEMENT ANALYSIS

BUSD Gird Road

Hole No.=LB-1 Water Depth=28.2 ft

Magnitude=7.8
Acceleration=0.51g

LiquefyPro CivilTech Software USA www.civiltech.com

Leighton

Plate A-1

****

LIQUEFACTION ANALYSIS CALCULATION DETAILS

Copyright by CivilTech Software
www.civiltechsoftware.com

****

Font: Courier New, Regular, Size 8 is recommended for this report.
Licensed to , 4/1/2016 12:03:16 PM

Input File Name: P:\Leighton - Infocus\11000 - 11999\11279 Bonsall USD Grid Rd HS\001 Prelim - GeoHaz\Analyses\Liquefaction\LB-1 Liquifaction.liq
Title: BUSD Gird Road
Subtitle:

Input Data:
Surface Elev.=
Hole No.=LB-1
Depth of Hole=51.50 ft
Water Table during Earthquake= 28.20 ft
Water Table during In-Situ Testing= 28.20 ft
Max. Acceleration=0.51 g
Earthquake Magnitude=7.80
No-Liquefiable Soils: CL, OL are Non-Liq. Soil
1. SPT or BPT Calculation.
2. Settlement Analysis Method: Ishihara / Yoshimine
3. Fines Correction for Liquefaction: Idriss/Seed
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1
7. Borehole Diameter, Cb= 1
8. Sampling Method, Cs= 1
9. User request factor of safety (apply to CSR) , User= 1
Plot two CSR (fs1=1, fs2=User)
10. Average two input data between two Depths: Yes*
* Recommended Options

In-Situ Test Data:

Depth ft	SPT	Gamma pcf	Fines %
0.00	21.00	128.00	40.00
5.00	15.60	132.00	20.00
10.00	15.00	128.00	50.00
15.00	36.00	114.00	NoLiq
20.00	32.00	130.00	50.00
25.00	18.60	128.00	40.00
30.00	9.00	114.00	NoLiq
35.00	12.60	114.00	NoLiq
40.00	18.00	116.00	NoLiq
45.00	14.00	116.00	80.00
50.00	19.00	114.00	NoLiq

Output Results:
Calculation segment, dz=0.050 ft
User defined Print Interval, dp=1.00 ft

Peak Ground Acceleration (PGA), a_max = 0.51g

CSR Calculation:

Depth ft	gamma pcf	sigma atm	gamma' pcf	sigma' atm	rd	mZ g	a(z) g	CSR	x	fs1 =CSRfs
0.00	128.00	0.000	128.00	0.000	1.00	0.000	0.510	0.33	1.00	0.33
1.00	128.80	0.061	128.80	0.061	1.00	0.000	0.510	0.33	1.00	0.33
2.00	129.60	0.122	129.60	0.122	1.00	0.000	0.510	0.33	1.00	0.33
3.00	130.40	0.183	130.40	0.183	0.99	0.000	0.510	0.33	1.00	0.33
4.00	131.20	0.245	131.20	0.245	0.99	0.000	0.510	0.33	1.00	0.33
5.00	132.00	0.307	132.00	0.307	0.99	0.000	0.510	0.33	1.00	0.33
6.00	131.20	0.369	131.20	0.369	0.99	0.000	0.510	0.33	1.00	0.33
7.00	130.40	0.431	130.40	0.431	0.98	0.000	0.510	0.33	1.00	0.33
8.00	129.60	0.493	129.60	0.493	0.98	0.000	0.510	0.33	1.00	0.33
9.00	128.80	0.554	128.80	0.554	0.98	0.000	0.510	0.32	1.00	0.32
10.00	128.00	0.614	128.00	0.614	0.98	0.000	0.510	0.32	1.00	0.32
11.00	125.20	0.674	125.20	0.674	0.97	0.000	0.510	0.32	1.00	0.32
12.00	122.40	0.733	122.40	0.733	0.97	0.000	0.510	0.32	1.00	0.32
13.00	119.60	0.790	119.60	0.790	0.97	0.000	0.510	0.32	1.00	0.32
14.00	116.80	0.846	116.80	0.846	0.97	0.000	0.510	0.32	1.00	0.32
15.00	114.00	0.900	114.00	0.900	0.97	0.000	0.510	0.32	1.00	0.32
16.00	117.20	0.955	117.20	0.955	0.96	0.000	0.510	0.32	1.00	0.32
17.00	120.40	1.011	120.40	1.011	0.96	0.000	0.510	0.32	1.00	0.32
18.00	123.60	1.069	123.60	1.069	0.96	0.000	0.510	0.32	1.00	0.32
19.00	126.80	1.128	126.80	1.128	0.96	0.000	0.510	0.32	1.00	0.32
20.00	130.00	1.188	130.00	1.188	0.95	0.000	0.510	0.32	1.00	0.32
21.00	129.60	1.250	129.60	1.250	0.95	0.000	0.510	0.32	1.00	0.32
22.00	129.20	1.311	129.20	1.311	0.95	0.000	0.510	0.31	1.00	0.31
23.00	128.80	1.372	128.80	1.372	0.95	0.000	0.510	0.31	1.00	0.31
24.00	128.40	1.433	128.40	1.433	0.94	0.000	0.510	0.31	1.00	0.31
25.00	128.00	1.493	128.00	1.493	0.94	0.000	0.510	0.31	1.00	0.31
26.00	125.20	1.553	125.20	1.553	0.94	0.000	0.510	0.31	1.00	0.31

27.00	122.40	1.612	122.40	1.612	0.94	0.000	0.510	0.31	1.00
0.31									
28.00	119.60	1.669	119.60	1.669	0.93	0.000	0.510	0.31	1.00
0.31									
29.00	116.80	1.725	54.40	1.703	0.93	0.000	0.510	0.31	1.00
0.31									
30.00	114.00	1.779	51.60	1.728	0.93	0.000	0.510	0.32	1.00
0.32									
31.00	114.00	1.833	51.60	1.752	0.92	0.000	0.510	0.32	1.00
0.32									
32.00	114.00	1.887	51.60	1.776	0.91	0.000	0.510	0.32	1.00
0.32									
33.00	114.00	1.941	51.60	1.801	0.91	0.000	0.510	0.32	1.00
0.32									
34.00	114.00	1.995	51.60	1.825	0.90	0.000	0.510	0.33	1.00
0.33									
35.00	114.00	2.049	51.60	1.850	0.89	0.000	0.510	0.33	1.00
0.33									
36.00	114.40	2.103	52.00	1.874	0.88	0.000	0.510	0.33	1.00
0.33									
37.00	114.80	2.157	52.40	1.899	0.87	0.000	0.510	0.33	1.00
0.33									
38.00	115.20	2.211	52.80	1.924	0.86	0.000	0.510	0.33	1.00
0.33									
39.00	115.60	2.266	53.20	1.949	0.86	0.000	0.510	0.33	1.00
0.33									
40.00	116.00	2.320	53.60	1.974	0.85	0.000	0.510	0.33	1.00
0.33									
41.00	116.00	2.375	53.60	1.999	0.84	0.000	0.510	0.33	1.00
0.33									
42.00	116.00	2.430	53.60	2.025	0.83	0.000	0.510	0.33	1.00
0.33									
43.00	116.00	2.485	53.60	2.050	0.82	0.000	0.510	0.33	1.00
0.33									
44.00	116.00	2.540	53.60	2.075	0.82	0.000	0.510	0.33	1.00
0.33									
45.00	116.00	2.594	53.60	2.101	0.81	0.000	0.510	0.33	1.00
0.33									
46.00	115.60	2.649	53.20	2.126	0.80	0.000	0.510	0.33	1.00
0.33									
47.00	115.20	2.704	52.80	2.151	0.79	0.000	0.510	0.33	1.00
0.33									
48.00	114.80	2.758	52.40	2.176	0.78	0.000	0.510	0.33	1.00
0.33									
49.00	114.40	2.812	52.00	2.200	0.78	0.000	0.510	0.33	1.00
0.33									
50.00	114.00	2.866	51.60	2.225	0.77	0.000	0.510	0.33	1.00
0.33									
51.00	114.00	2.920	51.60	2.249	0.76	0.000	0.510	0.33	1.00
0.33									

CSR is based on water table at 28.20 during earthquake

CRR Calculation from SPT or BPT data:

Depth	SPT	Cebs	Cr	sigma'	Cn	(N1)60	Fines	d(N1)60	(N1)60f	CRR7.5
ft				atm			%			
0.00	21.00	1.00	0.75	0.000	1.70	26.78	40.00	10.36		

37.13	2.00								
	1.00	19.92	1.00	0.75	0.061	1.70	25.40	36.00	10.08
35.48	2.00								
	2.00	18.84	1.00	0.75	0.122	1.70	24.02	32.00	8.94
32.96	2.00								
	3.00	17.76	1.00	0.75	0.183	1.70	22.64	28.00	7.69
30.33	2.00								
	4.00	16.68	1.00	0.75	0.245	1.70	21.27	24.00	6.47
27.73	0.34								
	5.00	15.60	1.00	0.75	0.307	1.70	19.89	20.00	5.19
25.08	0.28								
	6.00	15.48	1.00	0.75	0.369	1.65	19.10	26.00	6.73
25.83	0.30								
	7.00	15.36	1.00	0.75	0.431	1.52	17.54	32.00	7.83
25.37	0.29								
	8.00	15.24	1.00	0.75	0.493	1.42	16.29	38.00	8.26
24.54	0.28								
	9.00	15.12	1.00	0.85	0.554	1.34	17.27	44.00	8.45
25.73	0.29								
	10.00	15.00	1.00	0.85	0.614	1.28	16.27	50.00	8.25
24.52	0.28								
	11.00	19.20	1.00	0.85	0.674	1.22	19.88	60.20	8.98
28.85	0.37								
	12.00	23.40	1.00	0.85	0.733	1.17	23.24	70.40	9.65
32.88	2.00								
	13.00	27.60	1.00	0.85	0.790	1.13	26.40	80.60	10.28
36.68	2.00								
	14.00	31.80	1.00	0.85	0.846	1.09	29.39	90.80	10.88
40.27	2.00								
	15.00	36.00	1.00	0.95	0.900	1.05	36.04	NoLiq	12.21
48.25	2.00								
	16.00	35.20	1.00	0.95	0.955	1.02	34.22	NoLiq	11.84
46.06	2.00								
	17.00	34.40	1.00	0.95	1.011	0.99	32.50	NoLiq	11.50
44.00	2.00								
	18.00	33.60	1.00	0.95	1.069	0.97	30.88	NoLiq	11.18
42.05	2.00								
	19.00	32.80	1.00	0.95	1.128	0.94	29.34	NoLiq	10.87
40.21	2.00								
	20.00	32.00	1.00	0.95	1.188	0.92	27.89	NoLiq	10.58
38.46	2.00								
	21.00	29.32	1.00	0.95	1.250	0.89	24.92	48.00	9.98
34.90	2.00								
	22.00	26.64	1.00	0.95	1.311	0.87	22.10	46.00	9.42
31.52	2.00								
	23.00	23.96	1.00	0.95	1.372	0.85	19.43	44.00	8.89
28.32	0.35								
	24.00	21.28	1.00	0.95	1.433	0.84	16.89	42.00	8.38
25.27	0.29								
	25.00	18.60	1.00	0.95	1.493	0.82	14.46	40.00	7.89
22.35	0.24								
	26.00	16.68	1.00	0.95	1.553	0.80	12.72	52.20	7.54
20.26	0.22								
	27.00	14.76	1.00	0.95	1.612	0.79	11.05	64.40	7.21
18.25	0.20								
	28.00	12.84	1.00	1.00	1.669	0.77	9.94	76.60	6.99
16.93	0.18								
	29.00	10.92	1.00	1.00	1.703	0.77	8.37	88.80	6.67
15.04	0.16								
	30.00	9.00	1.00	1.00	1.728	0.76	6.85	NoLiq	6.37
13.22	0.14								
	31.00	9.72	1.00	1.00	1.752	0.76	7.34	NoLiq	6.47
13.81	0.15								

32.00	10.44	1.00	1.00	1.776	0.75	7.83	NoLiq	6.57
14.40	0.16							
33.00	11.16	1.00	1.00	1.801	0.75	8.32	NoLiq	6.66
14.98	0.16							
34.00	11.88	1.00	1.00	1.825	0.74	8.79	NoLiq	6.76
15.55	0.17							
35.00	12.60	1.00	1.00	1.850	0.74	9.26	NoLiq	6.85
16.12	0.17							
36.00	13.68	1.00	1.00	1.874	0.73	9.99	NoLiq	7.00
16.99	0.18							
37.00	14.76	1.00	1.00	1.899	0.73	10.71	NoLiq	7.14
17.85	0.19							
38.00	15.84	1.00	1.00	1.924	0.72	11.42	NoLiq	7.28
18.70	0.20							
39.00	16.92	1.00	1.00	1.949	0.72	12.12	NoLiq	7.42
19.54	0.21							
40.00	18.00	1.00	1.00	1.974	0.71	12.81	NoLiq	7.56
20.37	0.22							
41.00	17.20	1.00	1.00	1.999	0.71	12.16	NoLiq	7.43
19.60	0.21							
42.00	16.40	1.00	1.00	2.025	0.70	11.53	92.60	7.31
18.83	0.20							
43.00	15.60	1.00	1.00	2.050	0.70	10.90	88.40	7.18
18.08	0.19							
44.00	14.80	1.00	1.00	2.075	0.69	10.27	84.20	7.05
17.33	0.19							
45.00	14.00	1.00	1.00	2.101	0.69	9.66	80.00	6.93
16.59	0.18							
46.00	15.00	1.00	1.00	2.126	0.69	10.29	84.20	7.06
17.35	0.19							
47.00	16.00	1.00	1.00	2.151	0.68	10.91	NoLiq	7.18
18.09	0.20							
48.00	17.00	1.00	1.00	2.176	0.68	11.52	NoLiq	7.30
18.83	0.20							
49.00	18.00	1.00	1.00	2.200	0.67	12.13	NoLiq	7.43
19.56	0.21							
50.00	19.00	1.00	1.00	2.225	0.67	12.74	NoLiq	7.55
20.29	0.22							
51.00	19.00	1.00	1.00	2.249	0.67	12.67	NoLiq	7.53
20.20	0.22							

CRR is based on water table at 28.20 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 7.80:

Depth	sigC'	CRR7.5	x Ksig	=CRRv	x MSF	=CRRm	CSRfs	F.S.=CRRm/CSRfs
ft	atm							
0.00	0.00	2.00	1.00	2.00	0.90	1.81	0.33	5.00
1.00	0.04	2.00	1.00	2.00	0.90	1.81	0.33	5.00
2.00	0.08	2.00	1.00	2.00	0.90	1.81	0.33	5.00
3.00	0.12	2.00	1.00	2.00	0.90	1.81	0.33	5.00
4.00	0.16	0.34	1.00	0.34	0.90	0.30	0.33	5.00
5.00	0.20	0.28	1.00	0.28	0.90	0.26	0.33	5.00
6.00	0.24	0.30	1.00	0.30	0.90	0.27	0.33	5.00
7.00	0.28	0.29	1.00	0.29	0.90	0.26	0.33	5.00
8.00	0.32	0.28	1.00	0.28	0.90	0.25	0.33	5.00
9.00	0.36	0.29	1.00	0.29	0.90	0.27	0.32	5.00
10.00	0.40	0.28	1.00	0.28	0.90	0.25	0.32	5.00
11.00	0.44	0.37	1.00	0.37	0.90	0.33	0.32	5.00
12.00	0.48	2.00	1.00	2.00	0.90	1.81	0.32	5.00

13.00	0.51	2.00	1.00	2.00	0.90	1.81	0.32	5.00
14.00	0.55	2.00	1.00	2.00	0.90	1.81	0.32	5.00
15.00	0.59	2.00	1.00	2.00	0.90	2.00	0.32	5.00 ^
16.00	0.62	2.00	1.00	2.00	0.90	2.00	0.32	5.00 ^
17.00	0.66	2.00	1.00	2.00	0.90	2.00	0.32	5.00 ^
18.00	0.69	2.00	1.00	2.00	0.90	2.00	0.32	5.00 ^
19.00	0.73	2.00	1.00	2.00	0.90	2.00	0.32	5.00 ^
20.00	0.77	2.00	1.00	2.00	0.90	2.00	0.32	5.00 ^
21.00	0.81	2.00	1.00	2.00	0.90	1.81	0.32	5.00
22.00	0.85	2.00	1.00	2.00	0.90	1.81	0.31	5.00
23.00	0.89	0.35	1.00	0.35	0.90	0.32	0.31	5.00
24.00	0.93	0.29	1.00	0.29	0.90	0.26	0.31	5.00
25.00	0.97	0.24	1.00	0.24	0.90	0.22	0.31	5.00
26.00	1.01	0.22	1.00	0.22	0.90	0.20	0.31	5.00
27.00	1.05	0.20	1.00	0.20	0.90	0.18	0.31	5.00
28.00	1.08	0.18	0.99	0.18	0.90	0.16	0.31	5.00
29.00	1.11	0.16	0.99	0.16	0.90	0.15	0.31	0.46 *
30.00	1.12	0.14	0.99	0.14	0.90	0.13	0.32	0.40 *
31.00	1.14	0.15	0.98	0.15	0.90	2.00	0.32	5.00 ^
32.00	1.15	0.16	0.98	0.15	0.90	2.00	0.32	5.00 ^
33.00	1.17	0.16	0.98	0.16	0.90	2.00	0.32	5.00 ^
34.00	1.19	0.17	0.98	0.16	0.90	2.00	0.33	5.00 ^
35.00	1.20	0.17	0.97	0.17	0.90	2.00	0.33	5.00 ^
36.00	1.22	0.18	0.97	0.18	0.90	2.00	0.33	5.00 ^
37.00	1.23	0.19	0.97	0.19	0.90	2.00	0.33	5.00 ^
38.00	1.25	0.20	0.97	0.20	0.90	2.00	0.33	5.00 ^
39.00	1.27	0.21	0.97	0.20	0.90	2.00	0.33	5.00 ^
40.00	1.28	0.22	0.96	0.21	0.90	2.00	0.33	5.00 ^
41.00	1.30	0.21	0.96	0.20	0.90	2.00	0.33	5.00 ^
42.00	1.32	0.20	0.96	0.19	0.90	0.18	0.33	0.53 *
43.00	1.33	0.19	0.96	0.19	0.90	0.17	0.33	0.51 *
44.00	1.35	0.19	0.95	0.18	0.90	0.16	0.33	0.49 *
45.00	1.37	0.18	0.95	0.17	0.90	0.15	0.33	0.47 *
46.00	1.38	0.19	0.95	0.18	0.90	0.16	0.33	0.49 *
47.00	1.40	0.20	0.95	0.18	0.90	2.00	0.33	5.00 ^
48.00	1.41	0.20	0.94	0.19	0.90	2.00	0.33	5.00 ^
49.00	1.43	0.21	0.94	0.20	0.90	2.00	0.33	5.00 ^
50.00	1.45	0.22	0.94	0.21	0.90	2.00	0.33	5.00 ^
51.00	1.46	0.22	0.94	0.20	0.90	2.00	0.33	5.00 ^

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)
^ No-liquefiable Soils or above Water Table.
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60	qc1 atm	(N1)60	Fines %	d(N1)60	(N1)60s
0.00	-	-	-	37.13	40.00	0.00	37.13
1.00	-	-	-	35.48	36.00	0.00	35.48
2.00	-	-	-	32.96	32.00	0.00	32.96
3.00	-	-	-	30.33	28.00	0.00	30.33
4.00	-	-	-	27.73	24.00	0.00	27.73
5.00	-	-	-	25.08	20.00	0.00	25.08
6.00	-	-	-	25.83	26.00	0.00	25.83
7.00	-	-	-	25.37	32.00	0.00	25.37
8.00	-	-	-	24.54	38.00	0.00	24.54
9.00	-	-	-	25.73	44.00	0.00	25.73
10.00	-	-	-	24.52	50.00	0.00	24.52
11.00	-	-	-	28.85	60.20	0.00	28.85
12.00	-	-	-	32.88	70.40	0.00	32.88

13.00	-	-	-	36.68	80.60	0.00	36.68
14.00	-	-	-	40.27	90.80	0.00	40.27
15.00	-	-	-	48.25	NoLiq	0.00	48.25
16.00	-	-	-	46.06	NoLiq	0.00	46.06
17.00	-	-	-	44.00	NoLiq	0.00	44.00
18.00	-	-	-	42.05	NoLiq	0.00	42.05
19.00	-	-	-	40.21	NoLiq	0.00	40.21
20.00	-	-	-	38.46	NoLiq	0.00	38.46
21.00	-	-	-	34.90	48.00	0.00	34.90
22.00	-	-	-	31.52	46.00	0.00	31.52
23.00	-	-	-	28.32	44.00	0.00	28.32
24.00	-	-	-	25.27	42.00	0.00	25.27
25.00	-	-	-	22.35	40.00	0.00	22.35
26.00	-	-	-	20.26	52.20	0.00	20.26
27.00	-	-	-	18.25	64.40	0.00	18.25
28.00	-	-	-	16.93	76.60	0.00	16.93
29.00	-	-	-	15.04	88.80	0.00	15.04
30.00	-	-	-	13.22	NoLiq	0.00	13.22
31.00	-	-	-	13.81	NoLiq	0.00	13.81
32.00	-	-	-	14.40	NoLiq	0.00	14.40
33.00	-	-	-	14.98	NoLiq	0.00	14.98
34.00	-	-	-	15.55	NoLiq	0.00	15.55
35.00	-	-	-	16.12	NoLiq	0.00	16.12
36.00	-	-	-	16.99	NoLiq	0.00	16.99
37.00	-	-	-	17.85	NoLiq	0.00	17.85
38.00	-	-	-	18.70	NoLiq	0.00	18.70
39.00	-	-	-	19.54	NoLiq	0.00	19.54
40.00	-	-	-	20.37	NoLiq	0.00	20.37
41.00	-	-	-	19.60	NoLiq	0.00	19.60
42.00	-	-	-	18.83	92.60	0.00	18.83
43.00	-	-	-	18.08	88.40	0.00	18.08
44.00	-	-	-	17.33	84.20	0.00	17.33
45.00	-	-	-	16.59	80.00	0.00	16.59
46.00	-	-	-	17.35	84.20	0.00	17.35
47.00	-	-	-	18.09	NoLiq	0.00	18.09
48.00	-	-	-	18.83	NoLiq	0.00	18.83
49.00	-	-	-	19.56	NoLiq	0.00	19.56
50.00	-	-	-	20.29	NoLiq	0.00	20.29
51.00	-	-	-	20.20	NoLiq	0.00	20.20

(N1)60s has been fines corrected in liquefaction analysis, therefore d(N1)60=0.
Fines=NoLiq means the soils are not liquefiable.

Settlement of Saturated Sands:
Settlement Analysis Method: Ishihara / Yoshimine

Depth	CSRsf	/ MSF*	=CSRm	F.S.	Fines	(N1)60s	Dr	ec	dsz	dsp	S
ft					%		%	%	in.	in.	in.
51.45	0.33	1.00	0.33	5.00	NoLiq	20.17	70.84	0.000	0.0E0	0.000	0.000
51.00	0.33	1.00	0.33	5.00	NoLiq	20.20	70.90	0.000	0.0E0	0.000	0.000
50.00	0.33	1.00	0.33	5.00	NoLiq	20.29	71.05	0.000	0.0E0	0.000	0.000
49.00	0.33	1.00	0.33	5.00	NoLiq	19.56	69.75	0.000	0.0E0	0.000	0.000
48.00	0.33	1.00	0.33	5.00	NoLiq	18.83	68.43	0.000			

0.0E0	0.000	0.000								
	47.00	0.33	1.00	0.33	5.00	NoLiq	18.09	67.08	0.000	
0.0E0	0.000	0.000								
	46.00	0.33	1.00	0.33	0.49	84.20	17.35	65.72	2.456	
1.5E-2	0.015	0.015								
	45.00	0.33	1.00	0.33	0.47	80.00	16.59	64.32	2.542	
1.5E-2	0.300	0.315								
	44.00	0.33	1.00	0.33	0.49	84.20	17.33	65.69	2.458	
1.5E-2	0.300	0.615								
	43.00	0.33	1.00	0.33	0.51	88.40	18.08	67.06	2.375	
1.4E-2	0.290	0.904								
	42.00	0.33	1.00	0.33	0.53	92.60	18.83	68.43	2.291	
1.4E-2	0.280	1.184								
	41.00	0.33	1.00	0.33	5.00	NoLiq	19.60	69.81	0.000	
0.0E0	0.256	1.440								
	40.00	0.33	1.00	0.33	5.00	NoLiq	20.37	71.21	0.000	
0.0E0	0.000	1.440								
	39.00	0.33	1.00	0.33	5.00	NoLiq	19.54	69.72	0.000	
0.0E0	0.000	1.440								
	38.00	0.33	1.00	0.33	5.00	NoLiq	18.70	68.20	0.000	
0.0E0	0.000	1.440								
	37.00	0.33	1.00	0.33	5.00	NoLiq	17.85	66.65	0.000	
0.0E0	0.000	1.440								
	36.00	0.33	1.00	0.33	5.00	NoLiq	16.99	65.06	0.000	
0.0E0	0.000	1.440								
	35.00	0.33	1.00	0.33	5.00	NoLiq	16.12	63.42	0.000	
0.0E0	0.000	1.440								
	34.00	0.33	1.00	0.33	5.00	NoLiq	15.55	62.35	0.000	
0.0E0	0.000	1.440								
	33.00	0.32	1.00	0.32	5.00	NoLiq	14.98	61.24	0.000	
0.0E0	0.000	1.440								
	32.00	0.32	1.00	0.32	5.00	NoLiq	14.40	60.09	0.000	
0.0E0	0.000	1.440								
	31.00	0.32	1.00	0.32	5.00	NoLiq	13.81	58.91	0.000	
0.0E0	0.000	1.440								
	30.00	0.32	1.00	0.32	0.40	NoLiq	13.22	57.69	2.969	
0.0E0	0.000	1.440								
	29.00	0.31	1.00	0.31	0.46	88.80	15.04	61.36	2.721	
1.6E-2	0.322	1.763								
	28.25	0.31	1.00	0.31	0.51	79.65	16.43	64.02	2.560	
1.5E-2	0.237	2.000								

Settlement of Saturated Sands=2.000 in.
qc1 and (N1)60 is after fines correction in liquefaction analysis
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=1.00 ft
S is cumulated settlement at this depth

Settlement of Unsaturated Sands:

Depth	sigma'	sigC'	(N1)60s	CSRsf	Gmax	g*Ge/Gm	g_eff	ec7.5	Cec	ec	dsz	dsp	S
ft	atm	atm			atm			%			in.	in.	in.
28.20	1.68	1.09	16.53	0.31	1189.45	4.4E-4	0.1440	0.1816	1.12	0.2031	2.44E-3	0.002	0.002
28.00	1.67	1.08	16.93	0.31	1194.82	4.3E-4	0.1396	0.1708	1.12	0.1909	2.29E-3	0.009	0.012
27.00	1.61	1.05	18.25	0.31	1204.04	4.2E-4	0.1248	0.1384	1.12				

0.1547	1.86E-3	0.042	0.054								
	26.00	1.55	1.01	20.26	0.31	1223.69	4.0E-4	0.1091	0.1056	1.12
0.1181	1.42E-3	0.032	0.086								
	25.00	1.49	0.97	22.35	0.31	1239.83	3.8E-4	0.0961	0.0819	1.12
0.0916	1.10E-3	0.025	0.111								
	24.00	1.43	0.93	25.27	0.31	1265.03	3.5E-4	0.0834	0.0605	1.12
0.0676	8.12E-4	0.019	0.130								
	23.00	1.37	0.89	28.32	0.31	1285.82	3.3E-4	0.0732	0.0454	1.12
0.0507	6.09E-4	0.014	0.144								
	22.00	1.31	0.85	31.52	0.31	1302.60	3.2E-4	0.0649	0.0341	1.12
0.0382	4.58E-4	0.011	0.155								
	21.00	1.25	0.81	34.90	0.32	1315.66	3.0E-4	0.0579	0.0254	1.12
0.0283	3.40E-4	0.008	0.162								
	20.00	1.19	0.77	38.46	0.32	1325.19	2.8E-4	0.0519	0.0182	1.12
0.0204	0.00E0	0.006	0.168								
	19.00	1.13	0.73	40.21	0.32	1310.18	2.7E-4	0.0659	0.0208	1.12
0.0233	0.00E0	0.000	0.168								
	18.00	1.07	0.69	42.05	0.32	1294.55	2.6E-4	0.0592	0.0187	1.12
0.0209	0.00E0	0.000	0.168								
	17.00	1.01	0.66	44.00	0.32	1278.30	2.5E-4	0.0535	0.0169	1.12
0.0189	0.00E0	0.000	0.168								
	16.00	0.95	0.62	46.06	0.32	1261.43	2.4E-4	0.0484	0.0153	1.12
0.0171	0.00E0	0.000	0.168								
	15.00	0.90	0.59	48.25	0.32	1243.91	2.3E-4	0.0441	0.0139	1.12
0.0156	0.00E0	0.000	0.168								
	14.00	0.85	0.55	40.27	0.32	1135.18	2.4E-4	0.0472	0.0149	1.12
0.0167	2.00E-4	0.004	0.172								
	13.00	0.79	0.51	36.68	0.32	1063.41	2.4E-4	0.0472	0.0186	1.12
0.0208	2.50E-4	0.004	0.176								
	12.00	0.73	0.48	32.88	0.32	987.63	2.4E-4	0.0473	0.0232	1.12
0.0259	3.11E-4	0.006	0.182								
	11.00	0.67	0.44	28.85	0.32	906.97	2.4E-4	0.0478	0.0288	1.12
0.0322	3.86E-4	0.007	0.189								
	10.00	0.61	0.40	24.52	0.32	820.13	2.4E-4	0.0489	0.0369	1.12
0.0412	4.95E-4	0.009	0.198								
	9.00	0.55	0.36	25.73	0.32	791.12	2.3E-4	0.0423	0.0299	1.12
0.0335	4.01E-4	0.009	0.206								
	8.00	0.49	0.32	24.54	0.33	734.60	2.2E-4	0.0456	0.0343	1.12
0.0384	4.61E-4	0.009	0.215								
	7.00	0.43	0.28	25.37	0.33	694.92	2.0E-4	0.0394	0.0284	1.12
0.0318	3.82E-4	0.008	0.223								
	6.00	0.37	0.24	25.83	0.33	647.04	1.9E-4	0.0358	0.0252	1.12
0.0282	3.38E-4	0.007	0.231								
	5.00	0.31	0.20	25.08	0.33	584.29	1.7E-4	0.0319	0.0234	1.12
0.0261	3.14E-4	0.006	0.237								
	4.00	0.24	0.16	27.73	0.33	539.54	1.5E-4	0.0263	0.0168	1.12
0.0188	2.25E-4	0.005	0.242								
	3.00	0.18	0.12	30.33	0.33	480.67	1.3E-4	0.0232	0.0130	1.12
0.0145	1.74E-4	0.004	0.246								
	2.00	0.12	0.08	32.96	0.33	402.84	1.0E-4	0.0199	0.0097	1.12
0.0108	1.30E-4	0.003	0.249								
	1.00	0.06	0.04	35.48	0.33	291.48	6.9E-5	0.0113	0.0048	1.12
0.0053	6.40E-5	0.002	0.251								
	0.00	0.00	0.00	37.13	0.33	3.80	8.7E-7	0.0010	0.0004	1.12
0.0004	5.23E-6	0.001	0.252								

Settlement of Unsaturated Sands=0.252 in.
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=1.00 ft
S is cumulated settlement at this depth

Total Settlement of Saturated and Unsaturated Sands=2.252 in.
Differential Settlement=1.126 to 1.486 in.

Units: Unit: qc, fs, Stress or Pressure = atm (1.0581tsf); Unit Weight = pcf; Depth = ft; Settlement = in.

---

1 atm (atmosphere) = 1.0581 tsf(1 tsf = 1 ton/ft2 = 2 kip/ft2)
1 atm (atmosphere) = 101.325 kPa(1 kPa = 1 kN/m2 = 0.001 Mpa)

SPT	Field data from Standard Penetration Test (SPT)
BPT	Field data from Becker Penetration Test (BPT)
qc	Field data from Cone Penetration Test (CPT) [atm (tsf)]
fs	Friction from CPT testing [atm (tsf)]
Rf	Ratio of fs/qc (%)
gamma	Total unit weight of soil
gamma'	Effective unit weight of soil
Fines	Fines content [%]
D50	Mean grain size
Dr	Relative Density
sigma	Total vertical stress [atm]
sigma'	Effective vertical stress [atm]
sigC'	Effective confining pressure [atm]
rd	Acceleration reduction coefficient by Seed
a_max.	Peak Ground Acceleration (PGA) in ground surface
mZ	Linear acceleration reduction coefficient X depth
a_min.	Minimum acceleration under linear reduction, mZ
CRRv	CRR after overburden stress correction, CRRv=CRR7.5 * Ksig
CRR7.5	Cyclic resistance ratio (M=7.5)
Ksig	Overburden stress correction factor for CRR7.5
CRRm	After magnitude scaling correction CRRm=CRRv * MSF
MSF	Magnitude scaling factor from M=7.5 to user input M
CSR	Cyclic stress ratio induced by earthquake
CSRfs	CSRfs=CSR*fs1 (Default fs1=1)
fs1	First CSR curve in graphic defined in #9 of Advanced page
fs2	2nd CSR curve in graphic defined in #9 of Advanced page
F.S.	Calculated factor of safety against liquefaction F.S.=CRRm/CSRsf
Cebs	Energy Ratio, Borehole Dia., and Sampling Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after settlement fines corrections
CSRm	After magnitude scaling correction for Settlement calculation CSRm=CSRsf / MSF*
CSRfs	Cyclic stress ratio induced by earthquake with user inputed fs
MSF*	Scaling factor from CSR, MSF*=1, based on Item 2 of Page C.
ec	Volumetric strain for saturated sands
dz	Calculation segment, dz=0.050 ft
dsz	Settlement in each segment, dz
dp	User defined print interval

dsp	Settlement in each print interval, dp
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for unsaturated sands, ec=Cec * ec7.5
NoLiq	No-Liquefy Soils

References:

1. NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

2. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING AND SEISMIC SITE RESPONSE EVALUATION, Paper No. SPL-2, PROCEEDINGS: Fourth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, CA, March 2001.

3. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING: A UNIFIED AND CONSISTENT FRAMEWORK, Earthquake Engineering Research Center, Report No. EERC 2003-06 by R.B Seed and etc. April 2003.

Note: Print Interval you selected does not show complete results. To get complete results, you should select 'Segment' in Print Interval (Item 12, Page C).

APPENDIX D

EARTHWORK AND GRADING SPECIFICATIONS

APPENDIX D

EARTHWORK AND GRADING SPECIFICATIONS

TABLE OF CONTENTS

Section		Page
D-1.0	**GENERAL**	**2**
D-1.1	INTENT	2
D-1.2	ROLE OF LEIGHTON CONSULTING, INC.	2
D-1.3	THE EARTHWORK CONTRACTOR	2
D-2.0	**PREPARATION OF AREAS TO BE FILLED**	**3**
D-2.1	CLEARING AND GRUBBING	3
D-2.2	PROCESSING	3
D-2.3	OVEREXCAVATION	4
D-2.4	BENCHING	4
D-2.5	EVALUATION/ACCEPTANCE OF FILL AREAS	4
D-3.0	**FILL MATERIAL**	**4**
D-3.1	FILL QUALITY	4
D-3.2	OVERSIZE	4
D-3.3	IMPORT	5
D-4.0	**FILL PLACEMENT AND COMPACTION**	**5**
D-4.1	FILL LAYERS	5
D-4.2	FILL MOISTURE CONDITIONING	5
D-4.3	COMPACTION OF FILL	5
D-4.4	COMPACTION OF FILL SLOPES	6
D-4.5	COMPACTION TESTING	6
D-4.6	COMPACTION TEST LOCATIONS	6
D-5.0	**EXCAVATION**	**6**
D-6.0	**TRENCH BACKFILLS**	**6**
D-6.1	SAFETY	6
D-6.2	BEDDING AND BACKFILL	6
D-6.3	LIFT THICKNESS	7

STANDARD DETAILS

A - Keying and Benching	Rear of Text
B - Oversize Rock Disposal	Rear of Text
C - Canyon Subdrains	Rear of Text
D - Buttress or Replacement Fill Subdrains	Rear of Text
E - Transition Lot Fills and Side Hill Fills	Rear of Text
Retaining Wall	Rear of Text

D-1.0 GENERAL

D-1.1 Intent

These Earthwork and Grading Guide Specifications are for grading and earthwork shown on the current, approved grading plan(s) and/or indicated in the Leighton Consulting, Inc. geotechnical report(s). These Guide Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the project-specific recommendations in the geotechnical report shall supersede these Guide Specifications. Leighton Consulting, Inc. shall provide geotechnical observation and testing during earthwork and grading. Based on these observations and tests, Leighton Consulting, Inc. may provide new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

D-1.2 Role of Leighton Consulting, Inc.

Prior to commencement of earthwork and grading, Leighton Consulting, Inc. shall meet with the earthwork contractor to review the earthwork contractor's work plan, to schedule sufficient personnel to perform the appropriate level of observation, mapping and compaction testing. During earthwork and grading, Leighton Consulting, Inc. shall observe, map, and document subsurface exposures to verify geotechnical design assumptions. If observed conditions are found to be significantly different than the interpreted assumptions during the design phase, Leighton Consulting, Inc. shall inform the owner, recommend appropriate changes in design to accommodate these observed conditions, and notify the review agency where required. Subsurface areas to be geotechnically observed, mapped, elevations recorded, and/or tested include (1) natural ground after clearing to receiving fill but before fill is placed, (2) bottoms of all "remedial removal" areas, (3) all key bottoms, and (4) benches made on sloping ground to receive fill.

Leighton Consulting, Inc. shall observe moisture-conditioning and processing of the subgrade and fill materials, and perform relative compaction testing of fill to determine the attained relative compaction. Leighton Consulting, Inc. shall provide *Daily Field Reports* to the owner and the Contractor on a routine and frequent basis.

D-1.3 The Earthwork Contractor

The earthwork contractor (Contractor) shall be qualified, experienced and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Guide Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing grading and backfilling in accordance with the current, approved plans and specifications.

The Contractor shall inform the owner and Leighton Consulting, Inc. of changes in work schedules at least one working day in advance of such changes so that appropriate observations and tests can be planned and accomplished. The Contractor shall not assume that Leighton Consulting, Inc. is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish earthwork and grading in accordance with the applicable grading codes and agency ordinances, these Guide Specifications, and recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of Leighton Consulting, Inc., unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, adverse weather, etc., are resulting in a quality of work less than required in these specifications, Leighton Consulting, Inc. shall reject the work and may recommend to the owner that earthwork and grading be stopped until unsatisfactory condition(s) are rectified.

D-2.0 PREPARATION OF AREAS TO BE FILLED

D-2.1 Clearing and Grubbing

Vegetation, such as brush, grass, roots and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies and Leighton Consulting, Inc.. Care should be taken not to encroach upon or otherwise damage native and/or historic trees designated by the Owner or appropriate agencies to remain. Pavements, flatwork or other construction should not extend under the "drip line" of designated trees to remain.

Leighton Consulting, Inc. shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 3 percent of organic materials (by dry weight: ASTM D 2974-00). Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area. As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed.

D-2.2 Processing

Existing ground that has been declared satisfactory for support of fill, by Leighton Consulting, Inc., shall be scarified to a minimum depth of 6 inches (15 cm). Existing ground that is not satisfactory shall be overexcavated as specified in the following Section D-2.3. Scarification

shall continue until soils are broken down and free of large clay lumps or clods and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

D-2.3 Overexcavation

In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as evaluated by Leighton Consulting, Inc. during grading. All undocumented fill soils under proposed structure footprints should be excavated

D-2.4 Benching

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), (>20 percent grade) the ground shall be stepped or benched. The lowest bench or key shall be a minimum of 15 feet (4.5 m) wide and at least 2 feet (0.6 m) deep, into competent material as evaluated by Leighton Consulting, Inc.. Other benches shall be excavated a minimum height of 4 feet (1.2 m) into competent material or as otherwise recommended by Leighton Consulting, Inc.. Fill placed on ground sloping flatter than 5:1 (horizontal to vertical units), (<20 percent grade) shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.

D-2.5 Evaluation/Acceptance of Fill Areas

All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by Leighton Consulting, Inc. as suitable to receive fill. The Contractor shall obtain a written acceptance (*Daily Field Report*) from Leighton Consulting, Inc. prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

D-3.0 FILL MATERIAL

D-3.1 Fill Quality

Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by Leighton Consulting, Inc. prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to Leighton Consulting, Inc. or mixed with other soils to achieve satisfactory fill material.

D-3.2 Oversize

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 6 inches (15 cm), shall not be buried or placed in fill unless location, materials and placement methods are specifically accepted by Leighton Consulting, Inc.. Placement operations

shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 feet (3 m) measured vertically from finish grade, or within 2 feet (0.61 m) of future utilities or underground construction.

D-3.3 Import

If importing of fill material is required for grading, proposed import material shall meet the requirements of Section D-3.1, and be free of hazardous materials ("contaminants") and rock larger than 3-inches (8 cm) in largest dimension. All import soils shall have an Expansion Index (EI) of 20 or less and a sulfate content no greater than (≤) 500 parts-per-million (ppm). A representative sample of a potential import source shall be given to Leighton Consulting, Inc. at least four full working days before importing begins, so that suitability of this import material can be determined and appropriate tests performed.

D-4.0 FILL PLACEMENT AND COMPACTION

D-4.1 Fill Layers

Approved fill material shall be placed in areas prepared to receive fill, as described in Section D-2.0, above, in near-horizontal layers not exceeding 8 inches (20 cm) in loose thickness. Leighton Consulting, Inc. may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers, and only if the building officials with the appropriate jurisdiction approve. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

D-4.2 Fill Moisture Conditioning

Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM) Test Method D 1557.

D-4.3 Compaction of Fill

After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density as determined by ASTM Test Method D 1557. For fills thicker than 15 feet (4.5 m), the portion of the fill deeper than 15 feet below proposed finish grade shall be compacted to 95 percent of the ASTM D 1557 laboratory maximum density. Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

D-4.4 Compaction of Fill Slopes

In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet (1 to 1.2 m) in fill elevation, or by other methods producing satisfactory results acceptable to Leighton Consulting, Inc.. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of the ASTM D 1557 laboratory maximum density.

D-4.5 Compaction Testing

Field-tests for moisture content and relative compaction of the fill soils shall be performed by Leighton Consulting, Inc.. Location and frequency of tests shall be at our field representative(s) discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

D-4.6 Compaction Test Locations

Leighton Consulting, Inc. shall document the approximate elevation and horizontal coordinates of each density test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that Leighton Consulting, Inc. can determine the test locations with sufficient accuracy. Adequate grade stakes shall be provided.

D-5.0 EXCAVATION

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by Leighton Consulting, Inc. during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by Leighton Consulting, Inc. based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by Leighton Consulting, Inc. prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by Leighton Consulting, Inc..

D-6.0 TRENCH BACKFILLS

D-6.1 Safety

The Contractor shall follow all OSHA and Cal/OSHA requirements for safety of trench excavations. Work should be performed in accordance with Article 6 of the *California Construction Safety Orders*, 2003 Edition or more current.

D-6.2 Bedding and Backfill

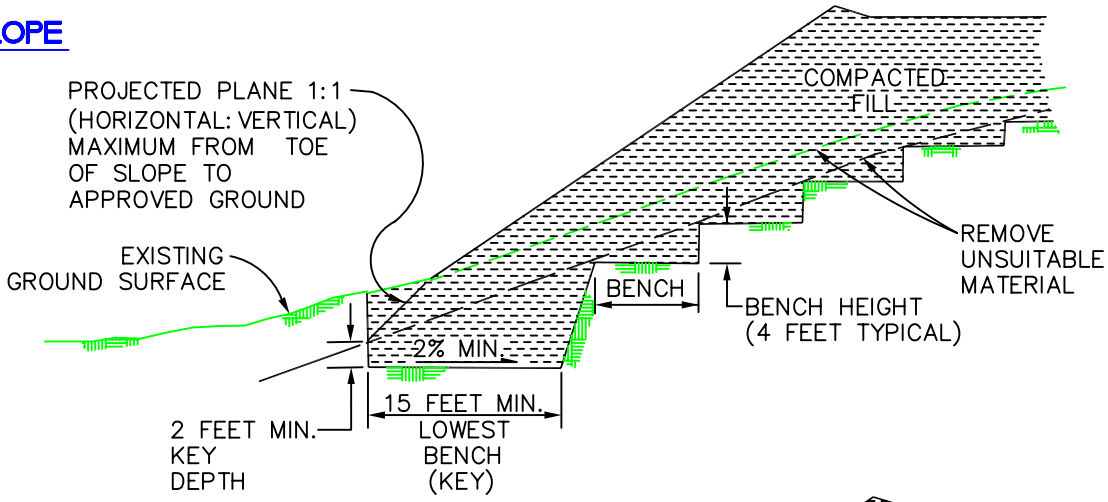
All bedding and backfill of utility trenches shall be performed in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall

have a Sand Equivalent greater than 30 (SE>30). Bedding shall be placed to 1-foot (0.3 m) over the top of the conduit, and densified by jetting. Backfill shall be placed and densified to a minimum of 90 percent of relative compaction (ASTM D 1557) from 1 foot (0.3 m) above the top of the conduit to the surface. Jetting of the bedding around the conduits shall be observed by Leighton Consulting, Inc. and backfill above the pipe zone (bedding) shall be observed and tested by Leighton Consulting, Inc..

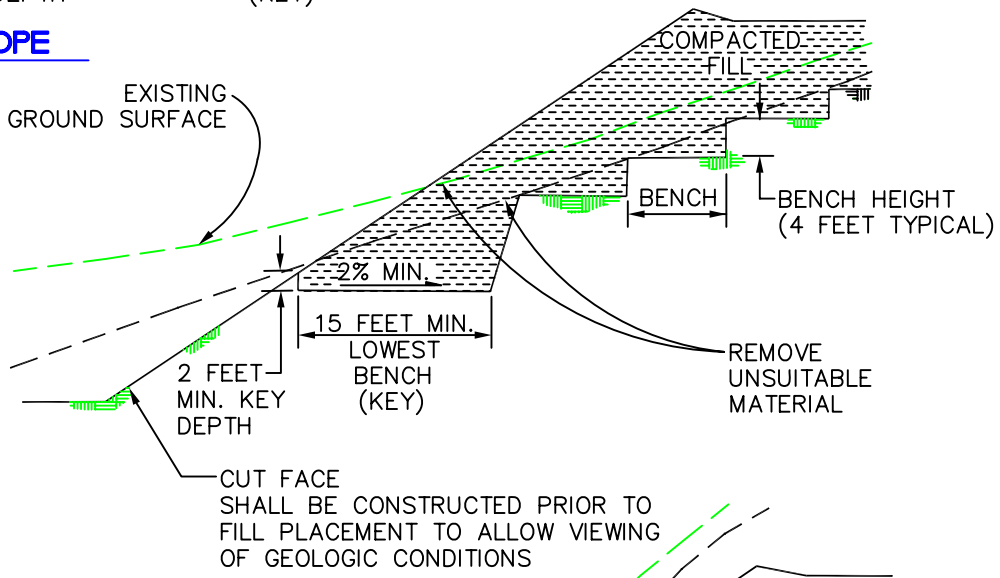
D-6.3 Lift Thickness

Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to Leighton Consulting, Inc. that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method, and only if the building officials with the appropriate jurisdiction approve.

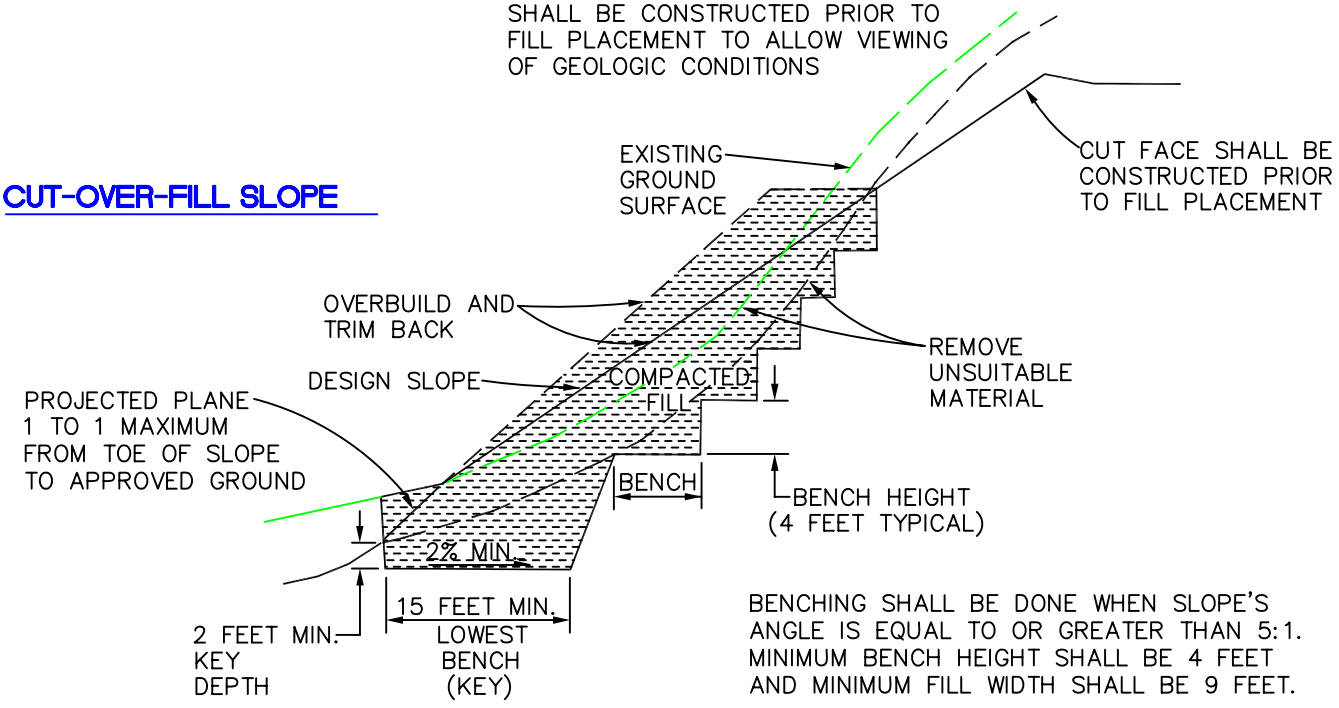
FILL SLOPE



FILL-OVER-CUT SLOPE

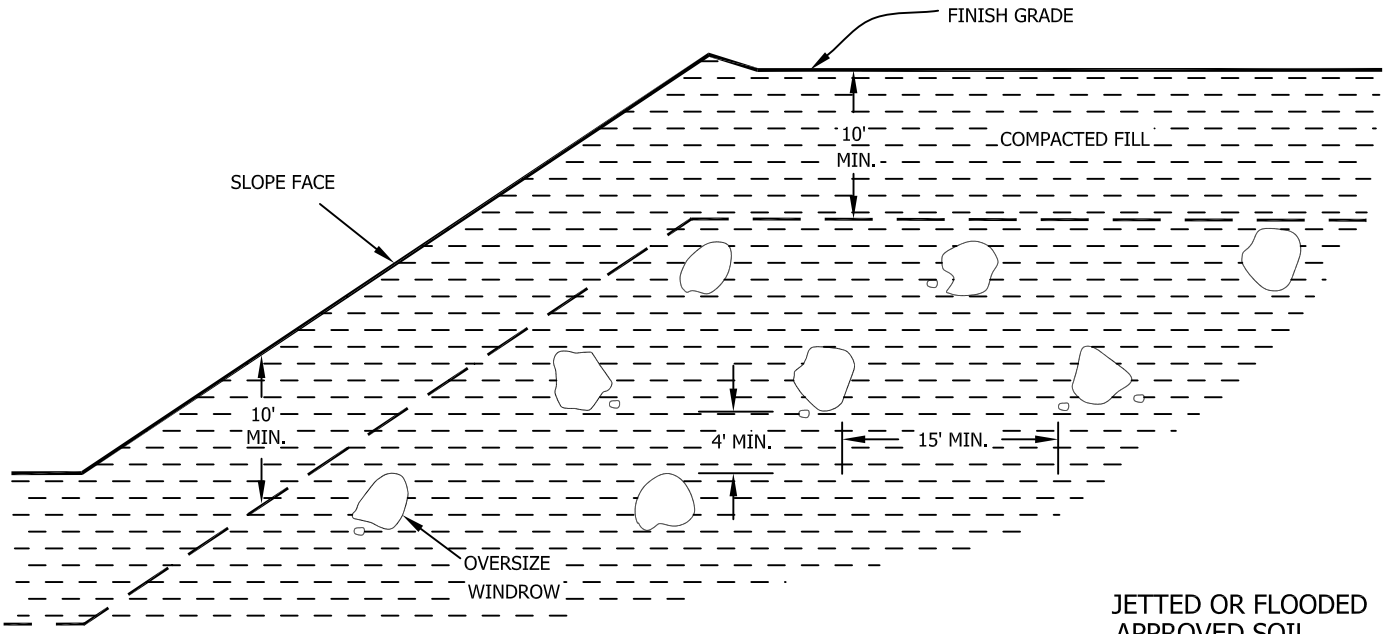


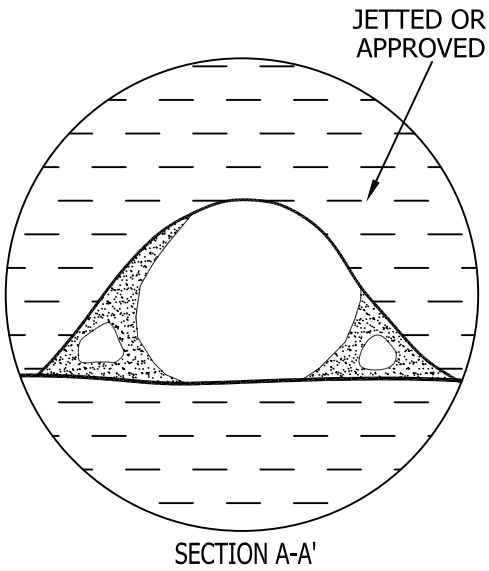
CUT-OVER-FILL SLOPE



BENCHING SHALL BE DONE WHEN SLOPE'S ANGLE IS EQUAL TO OR GREATER THAN 5:1. MINIMUM BENCH HEIGHT SHALL BE 4 FEET AND MINIMUM FILL WIDTH SHALL BE 9 FEET.

KEYING AND BENCHING	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS A	Leighton

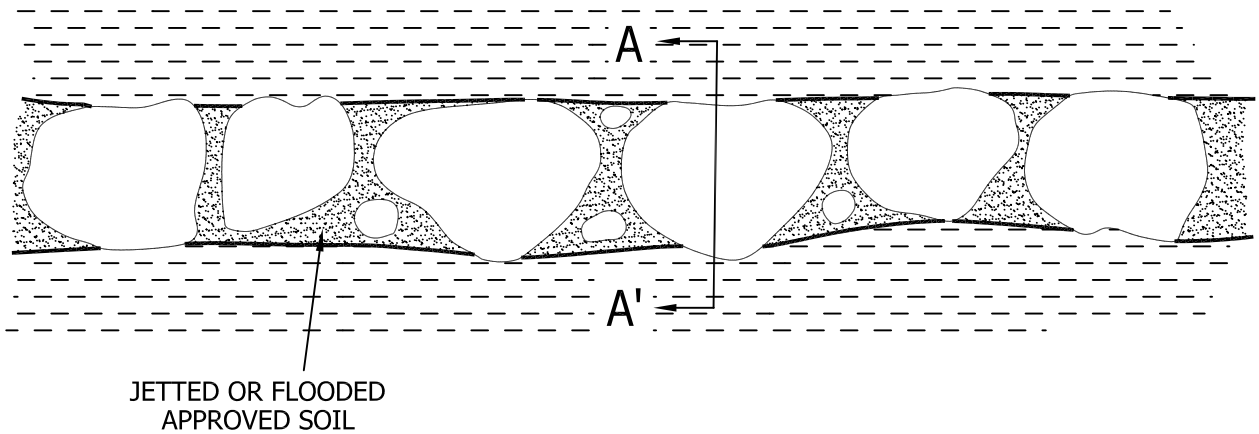




SECTION A-A'

- Oversize rock is larger than 8 inches in largest dimension.
- Backfill with approved soil jetted or flooded in place to fill all the voids.
- Do not bury rock within 10 feet of finish grade.
- Windrow of buried rock shall be parallel to the finished slope face.

PROFILE ALONG WINDROW

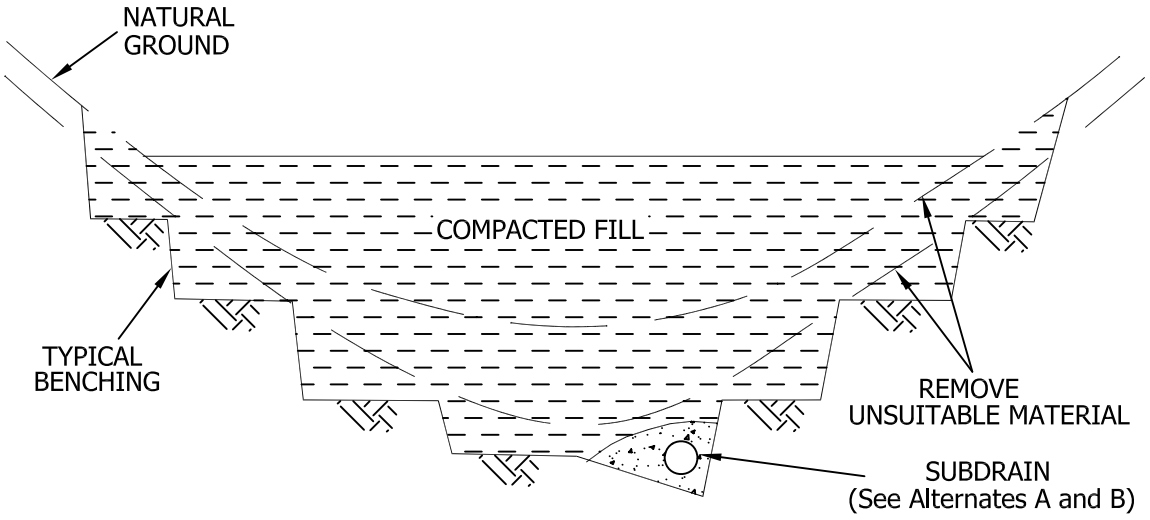


OVERSIZE ROCK DISPOSAL

GENERAL EARTHWORK AND GRADING
SPECIFICATIONS
STANDARD DETAILS B

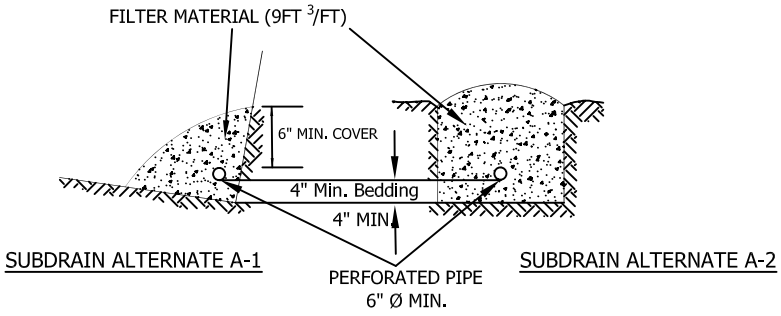
Leighton

P:Drafting\templates\details\over-rock-disp.dwg (7/00)



SUBDRAIN ALTERNATE A

PERFORATED PIPE SURROUNDED WITH FILTER MATERIAL

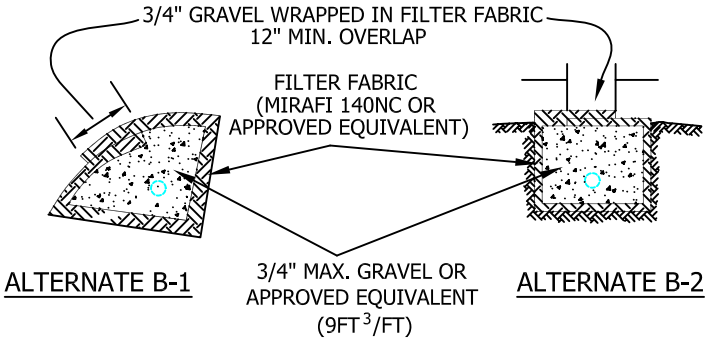


FILTER MATERIAL

FILTER MATERIAL SHALL BE CLASS 2 PERMEABLE MATERIAL PER STATE OF CALIFORNIA STANDARD SPECIFICATION, OR APPROVED ALTERNATE. CLASS 2 GRADING AS FOLLOWS:

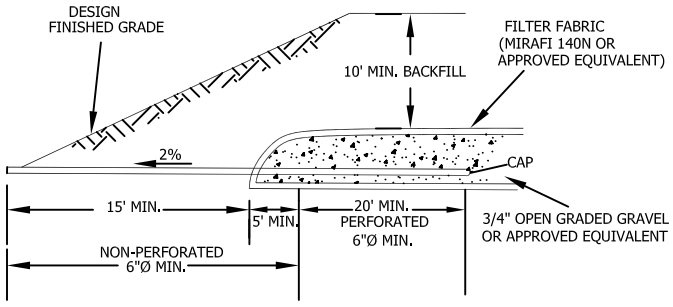
Sieve Size	Percent Passing
1"	100
3/4"	90-100
3/8"	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

SUBDRAIN ALTERNATE B



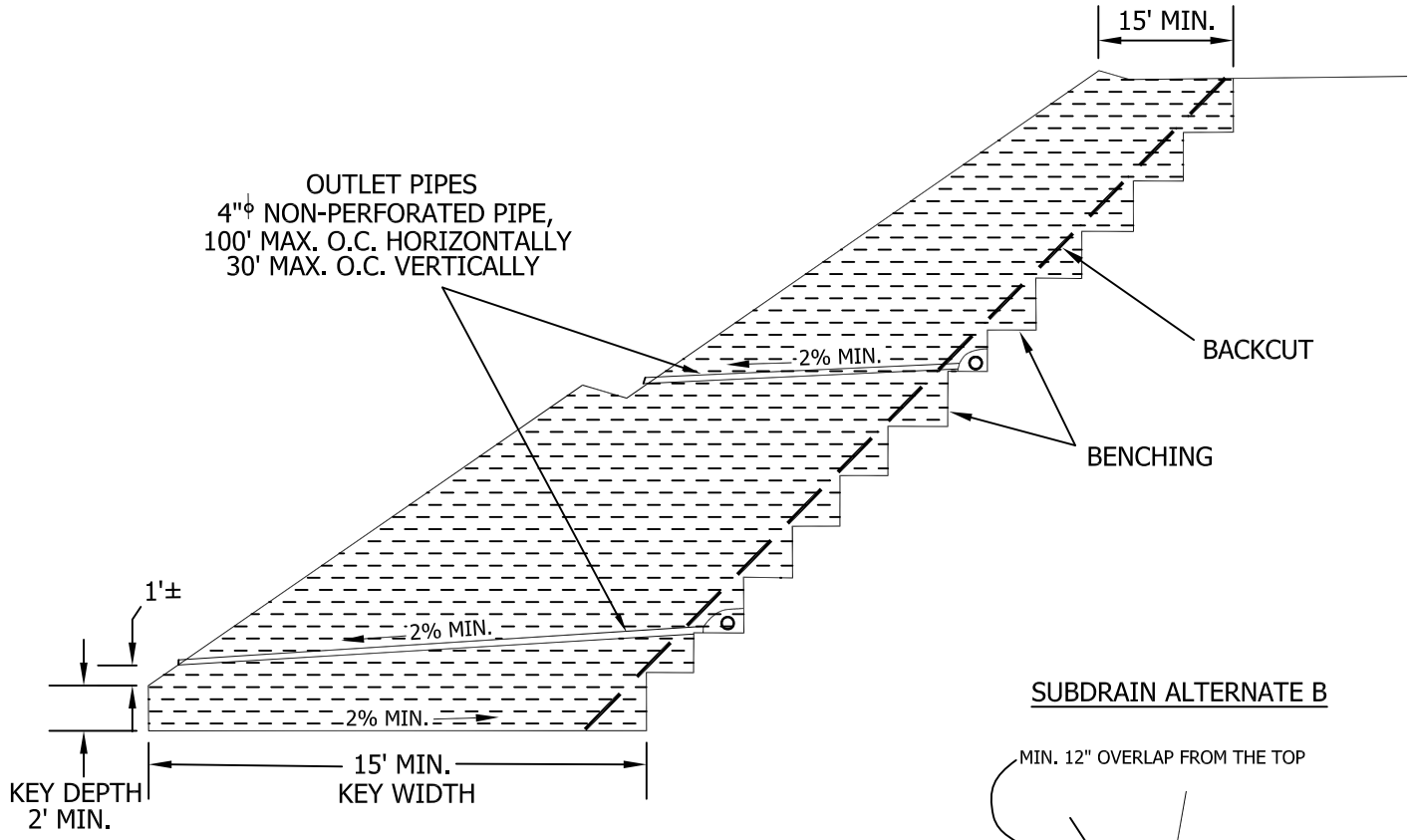
○ PERFORATED PIPE IS OPTIONAL PER GOVERNING AGENCY'S REQUIREMENTS

DETAIL OF CANYON SUBDRAIN TERMINAL

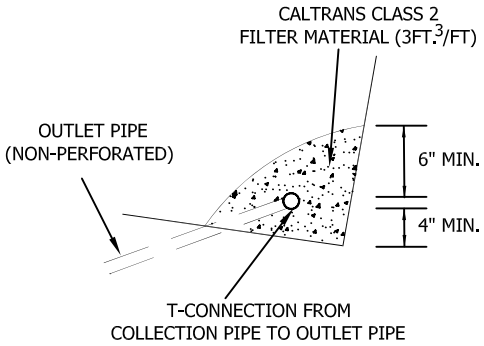


CANYON SUBDRAIN	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS C	Leighton

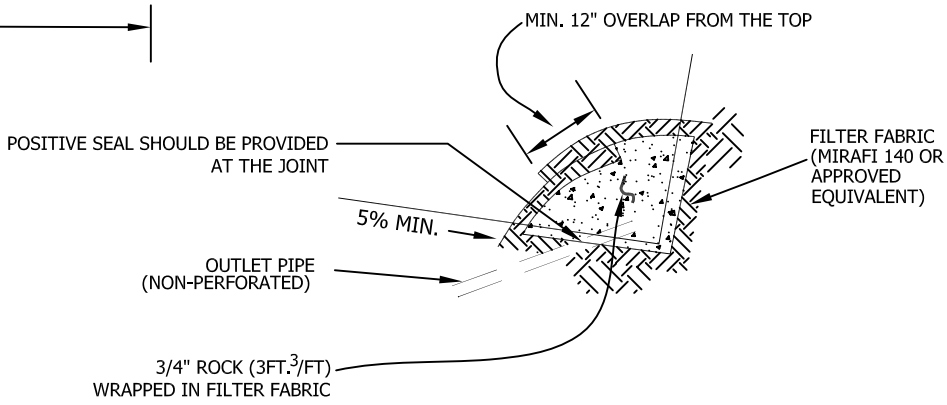
P:Drafting\templates\details\canyon_drains.dwg (7/00)



SUBDRAIN ALTERNATE A



SUBDRAIN ALTERNATE B

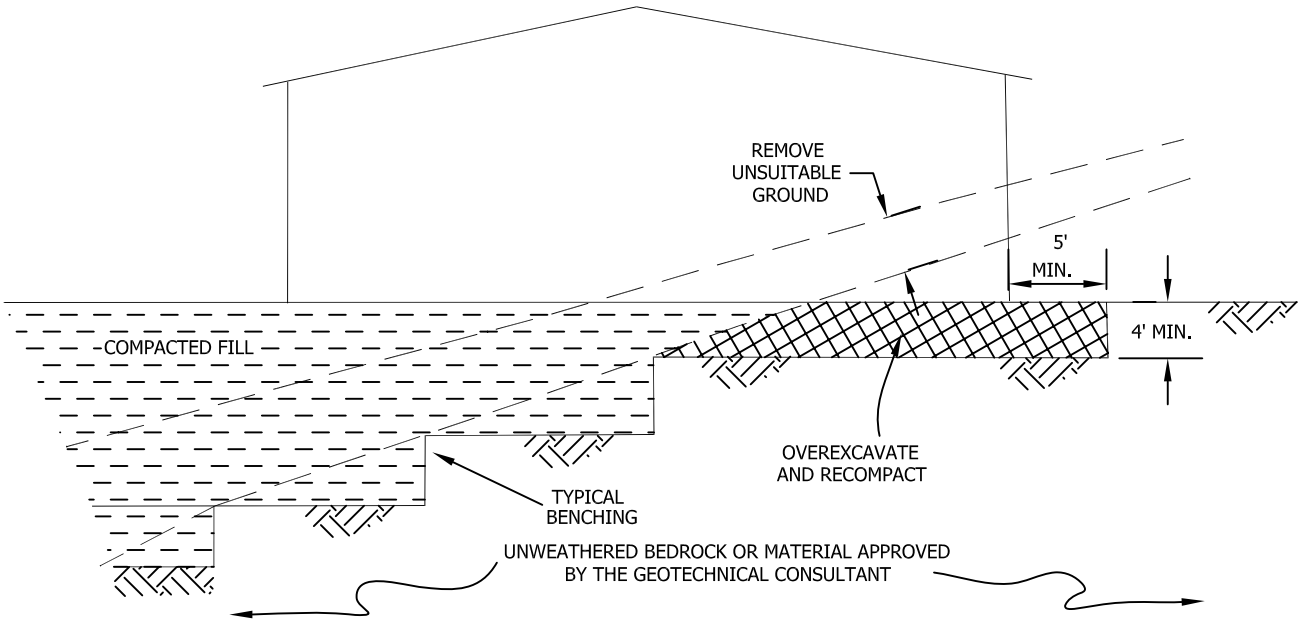


- SUBDRAIN INSTALLATION - Subdrain collector pipe shall be installed with perforations down or, unless otherwise designated by the geotechnical consultant. Outlet pipes shall be non-perforated pipe. The subdrain pipe shall have at least 8 perforations uniformly spaced per foot. Perforation shall be 1/4" to 1/2" if drilled holes are used. All subdrain pipes shall have a gradient at least 2% towards the outlet.
- SUBDRAIN PIPE - Subdrain pipe shall be ASTM D2751, ASTM D1527 (Schedule 40) or SDR 23.5 ABS pipe or ASTM D3034 (Schedule 40) or SDR 23.5 PVC pipe.
- All outlet pipe shall be placed in a trench and, after fill is placed above it, rodded to verify integrity.

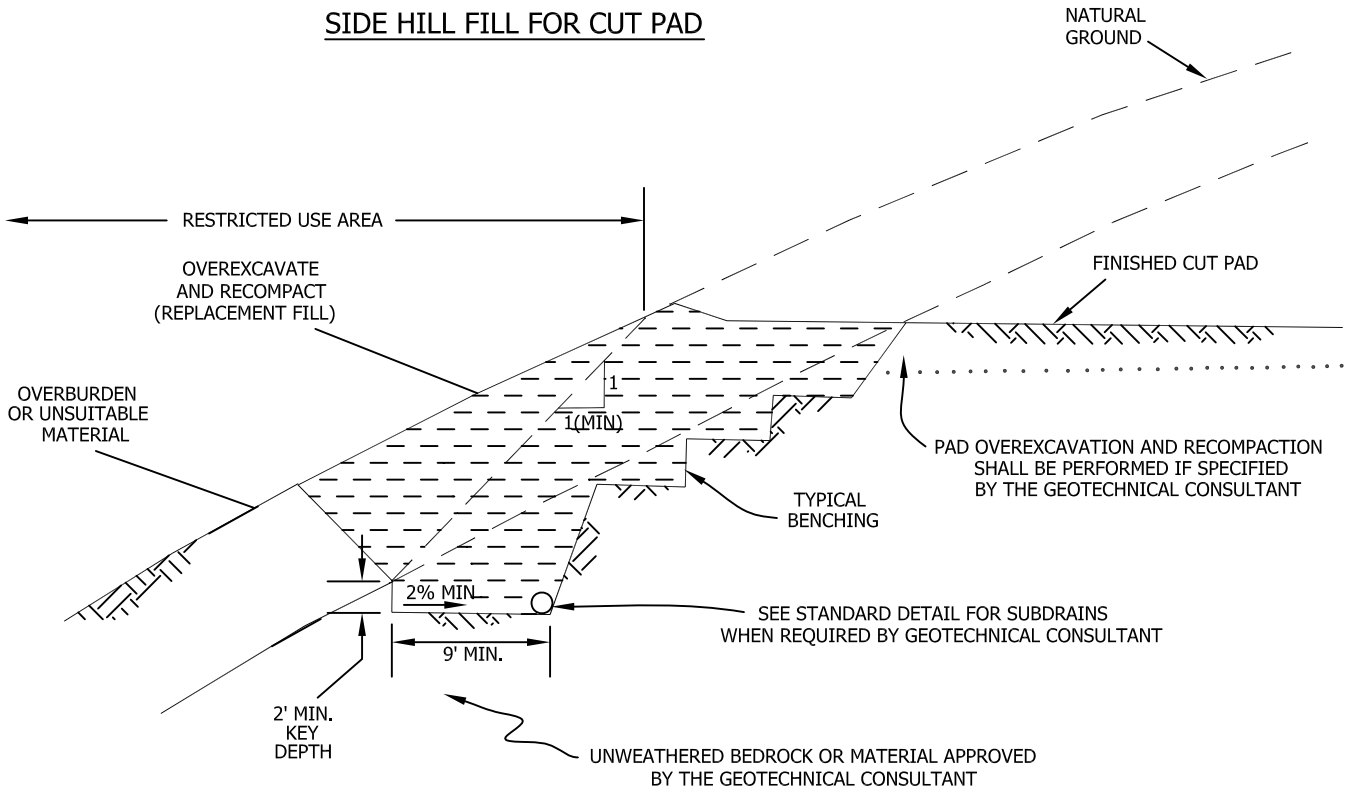
BUTTRESS OR REPLACEMENT FILL SUBDRAINS	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS D	Leighton

P:Drafting\templates\details\buttress_repl_sub.dwg (7/00)

CUT-FILL TRANSITION LOT OVEREXCAVATION



SIDE HILL FILL FOR CUT PAD



TRANSITION LOT FILLS AND SIDE HILL FILLS

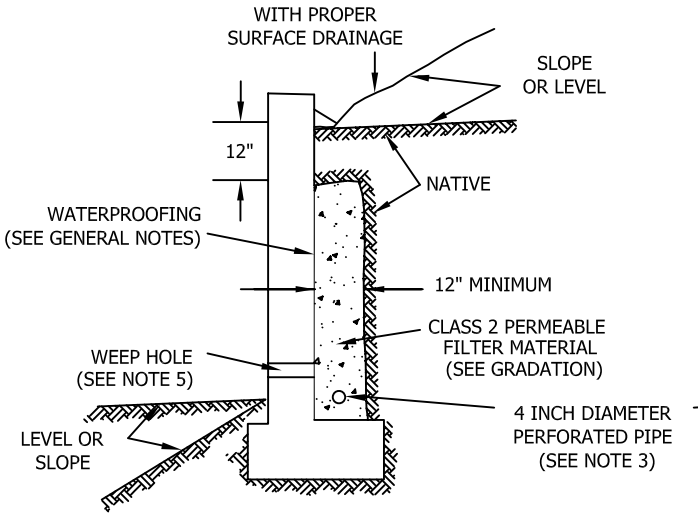
GENERAL EARTHWORK AND GRADING SPECIFICATIONS
STANDARD DETAILS E

Leighton

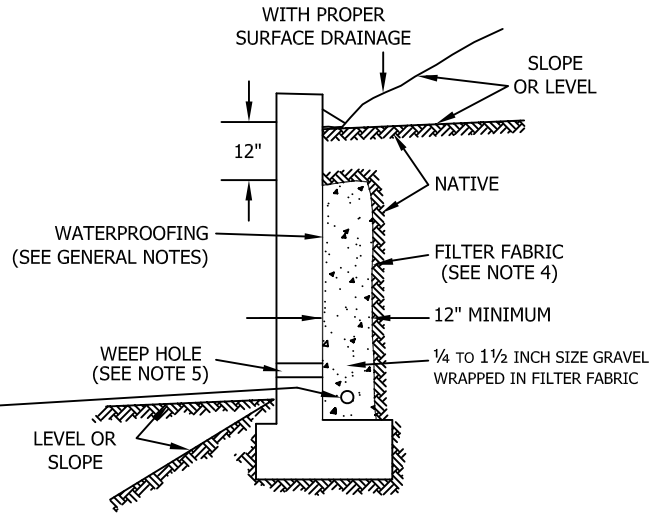
P:Drafting\templates\details\transition_fills.dwg (7/00)

SUBDRAIN OPTIONS AND BACKFILL WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF ≤50

OPTION 1: PIPE SURROUNDED WITH CLASS 2 PERMEABLE MATERIAL



OPTION 2: GRAVEL WRAPPED IN FILTER FABRIC



Class 2 Filter Permeable Material Gradation
Per Caltrans Specifications

Sieve Size	Percent Passing
1"	100
3/4"	90-100
3/8"	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

GENERAL NOTES:

* Waterproofing should be provided where moisture nuisance problem through the wall is undesirable.
* Water proofing of the walls is not under purview of the geotechnical engineer
* All drains should have a gradient of 1 percent minimum
*Outlet portion of the subdrain should have a 4-inch diameter solid pipe discharged into a suitable disposal area designed by the project engineer. The subdrain pipe should be accessible for maintenance (rodding)
*Other subdrain backfill options are subject to the review by the geotechnical engineer and modification of design parameters.

Notes:
1) Sand should have a sand equivalent of 30 or greater and may be densified by water jetting.
2) 1 Cu. ft. per ft. of 1/4- to 1 1/2-inch size gravel wrapped in filter fabric
3) Pipe type should be ASTM D1527 Acrylonitrile Butadiene Styrene (ABS) SDR35 or ASTM D1785 Polyvinyl Chloride plastic (PVC), Schedule 40, Armco A2000 PVC, or approved equivalent. Pipe should be installed with perforations down. Perforations should be 3/8 inch in diameter placed at the ends of a 120-degree arc in two rows at 3-inch on center (staggered)
4) Filter fabric should be Mirafi 140NC or approved equivalent.
5) Weephole should be 3-inch minimum diameter and provided at 10-foot maximum intervals. If exposure is permitted, weepholes should be located 12 inches above finished grade. If exposure is not permitted such as for a wall adjacent to a sidewalk/curb, a pipe under the sidewalk to be discharged through the curb face or equivalent should be provided. For a basement-type wall, a proper subdrain outlet system should be provided.
6) Retaining wall plans should be reviewed and approved by the geotechnical engineer.
7) Walls over six feet in height are subject to a special review by the geotechnical engineer and modifications to the above requirements.

RETAINING WALL BACKFILL AND SUBDRAIN DETAIL FOR WALLS 6 FEET OR LESS IN HEIGHT

WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF ≤50

Leighton

Figure

Appendix N

Phase I Environmental Site Assessment

ESA

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PHASE I ENVIRONMENTAL SITE ASSESSMENT AND TITLE V ENVIRONMENTAL HAZARDS EVALUATION NEW SCHOOL SITE WEST OF GIRD ROAD AND LIVE OAK CREEK CIRCLE FALLBROOK, SAN DIEGO COUNTY, CALIFORNIA

Prepared for:
BONSALL UNIFIED SCHOOL DISTRICT

MAY 2016

padre
associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

May 26, 2016
Proposal Number: 1601-1111

Mr. David Medcalf
Director of Facilities, Maintenance, and Transportation
Bonsall Unified School District
31505 Old River Road
Bonsall, CA 92003

Subject: **Phase I Environmental Site Assessment and Title V Environmental Hazards Evaluation for a New School Site, Fallbrook, San Diego County, California**

Dear Mr. Medcalf:

Padre Associates, Inc. (Padre) on behalf of Bonsall Unified School District has prepared this Phase I Environmental Site Assessment (ESA) and Title V Environmental Hazards Evaluation for a new school site located west of Gird Road and Live Oak Creek Circle, in Fallbrook, San Diego County, California (Project Site).

This Phase I ESA and environmental hazards report was performed in general accordance with the requirements of the California Department of Education (CDE), and the Department of Toxic Substances Control (DTSC) for evaluating new and existing school sites; and the American Society for Testing and Materials (ASTM) Standard Practice Designation E 1527-13.

Padre appreciates the opportunity to provide environmental consulting services to the Bonsall Unified School District. If you have any questions or require additional information, please contact Mr. Alan Klein at (916) 333-5920, Ext. 24.

Sincerely,

PADRE ASSOCIATES, INC.

Matt Miller, G.I.T.
Staff Geologist

Alan J. Klein, R.E.P.A., C.P.E.S.C., C.E.M.
Senior Environmental Scientist

CC: John Dominguez, School Site Solutions, Inc.

PHASE I ENVIRONMENTAL SITE ASSESSMENT AND TITLE V ENVIRONMENTAL HAZARDS EVALUATION NEW SCHOOL SITE WEST OF GIRD ROAD AND LIVE OAK CREEK CIRCLE FALLBROOK, SAN DIEGO COUNTY, CALIFORNIA

Prepared for:
BONSALL UNIFIED SCHOOL DISTRICT

MAY 2016

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY ES-1

1.0 INTRODUCTION 1

2.0 ENVIRONMENTAL SETTING 3

2.1 SITE LOCATION AND DESCRIPTION 3
2.2 TOPOGRAPHY AND DRAINAGE 3
2.3 GEOLOGY AND HYDROGEOLOGY 3
2.4 FLOODPLAIN 5
2.5 RADON 5
2.6 OIL AND GAS WELLS 6
2.7 NATURALLY OCCURRING ASBESTOS (NOA) 6

3.0 HISTORICAL SITE CONDITIONS 6

3.1 HISTORICAL AERIAL PHOTOGRAPHS 6
3.2 UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHIC MAPS 8
3.3 HISTORICAL SANBORN FIRE INSURANCE MAPS 8
3.4 CITY DIRECTORIES 8
3.5 ENVIRONMENTAL LIENS 8
3.6 EXISTING ENVIRONMENTAL REPORTS 9

4.0 CURRENT SITE CONDITIONS 9

4.1 SITE RECONNAISSANCE 9
4.2 ASBESTOS-CONTAINING MATERIALS 9
4.3 LEAD-BASED PAINT 10
4.4 POLYCHLORINATED BIPHENYLS 10
4.5 TERMITICIDES 10
4.6 PROPERTY OWNER QUESTIONNAIRE 11
4.7 SURROUNDING PROPERTIES 11

5.0 ENVIRONMENTAL RECORDS REVIEW AND HAZARDS SURVEY 11

5.1 PUBLIC RECORDS REVIEW AND AGENCY CONTACTS 11
5.1.1 San Diego Air Pollution Control District 11
5.1.2 Rainbow Municipal Water District 12
5.1.3 High Pressure Natural Gas and Fuel Transmission Pipelines 12
5.1.4 High Voltage Electric Power Lines 12
5.1.5 Airports 12
5.1.6 Railroads 13
5.1.7 Earthquake Fault Zones 13
5.1.8 Dam Inundation 13
5.1.9 Aboveground Water and/or Fuel Storage Tanks 14

TABLE OF CONTENTS (Continued)

Page

5.1.10 Traffic Corridor 14
5.2 ENVIRONMENTAL DATABASE INFORMATION..... 14
5.2.1 National Priorities List - Federal Superfund 15
5.2.2 U.S. EPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS).... 15
5.2.3 RCRA-TSD Facilities List 16
5.2.4 RCRA - LQG's List 16
5.2.5 RCRA - SQG's List..... 16
5.2.6 Emergency Response Notification System 16
5.2.7 RCRA-CORRACTS Facilities List..... 16
5.2.8 SWF/LF (SWIS) List 17
5.2.9 UST List 17
5.2.10 Historical UST 17
5.2.11 CA FID UST 17
5.2.12 Leaking Underground Storage Tank List 18
5.2.13 AST List..... 18
5.2.14 US Eng Controls List 18
5.2.15 US Inst Controls List..... 18
5.2.16 Historical Cal-Sites List..... 19
5.2.17 WMUD/SWAT List..... 19
5.2.18 California Hazardous Materials Incident Reporting System 19
5.2.19 CERCLIS/NFRAP List 19
5.2.20 Voluntary Cleanup Program List..... 19
5.2.21 Hazardous Waste Information System 20
5.2.22 CA SLIC Program..... 20
5.2.23 ENVIROSTOR..... 20

6.0 CONCLUSIONS AND RECOMMENDATIONS 20

7.0 LIMITATIONS 21

8.0 REFERENCES AND PERSONS CONSULTED 22

TABLES

Table 1 – Title V Environmental Hazards Summary 14

PLATES

Site Location ..... Plate 1
Site Plan ..... Plate 2

APPENDICES

APPENDIX A: ASSESSOR'S PARCEL MAP AND FLOOD INSURANCE RATE MAP

APPENDIX B: HISTORICAL AERIAL PHOTOGRAPHS AND TOPOGRAPHIC MAPS

APPENDIX C: SITE PHOTOGRAPHS

APPENDIX D: PROPERTY OWNER QUESTIONNAIRE

APPENDIX E: UTILITY INFORMATION RESPONSES

APPENDIX F: EDR RADIUS MAP REPORT

APPENDIX G: QUALIFICATIONS OF ENVIRONMENTAL ASSESSOR

EXECUTIVE SUMMARY

Padre Associates, Inc. (Padre), on behalf of Bonsall Unified School District (District) has completed a Phase I environmental site assessment (ESA) and Title V environmental hazards evaluation for the proposed new school site (Project Site) located west of Gird Road and Live Oak Creek Circle, in Fallbrook, San Diego County, California (Project Site).

The objective of the ESA was to determine whether current or previous land use at or adjacent to the Project Site may have involved, or resulted in the use, storage, disposal, treatment, and/or release of hazardous substances to the environment. The ESA was completed consistent with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments (E-1527-13).

To achieve the objective of the ESA, the following tasks were completed:

- A review of readily available geologic and hydrogeologic literature;
- Historical research including a review of available historical aerial photographs; Sanborn Fire Insurance Maps, and historical topographic maps relating to the Project Site;
- A site reconnaissance of the Project Site and properties located within a ½ mile of the Project Site;
- Interviews with knowledgeable persons;
- Public agency records review;
- An environmental database search;
- Performing all appropriate inquiries (AAIs);
- Identifying recognized environmental conditions (RECs);
- Identifying historical recognized environmental conditions (HRECs);
- Identifying controlled recognized environmental conditions (CRECs), including activity and use limitations (AULs);
- Identifying vapor migration environmental conditions (VEC); and
- The preparation of this report presenting the results of the ESA.

The environmental hazards evaluation consisted of completing a review of hazards as described in California Code of Regulations, Title 5, Sections 14010 et seq. The environmental hazards evaluation will identify the presence and/or absence of the following:

- Facilities that might reasonably be anticipated to emit hazardous air emissions or hazardous materials handlers within a ¼-mile of the Project Site;

- High volume (≥12 inches) water pipelines on or near the Project Site;
- High pressure natural gas and/or liquid petroleum pipelines located within 1,500 feet of the Project Site;
- High voltage power transmission lines located within 500 feet of the Project Site and transformers of cell towers on or near the Project site;
- Airports located within 2-nautical miles of the Project Site;
- Railroad tracks located within 1,500 feet of the Project Site;
- Earthquake faults or traces on or near the site; and identify if the Project Site is located in an Alquist-Priolo Earthquake Fault Zone;
- Flood hazard and dam inundation;
- Aboveground water/fuel storage tanks on or near the Project Site; and
- Traffic corridor (freeway or other busy traffic corridor) located within 500 feet of the Project Site.

Based on the results of the scope of services performed for this Phase I ESA and Title V Environmental Hazards Evaluation, Padre makes the following conclusions and recommendations regarding the Project Site:

The Project Site consists of 49.78 acres of undeveloped land and is identified by the County of San Diego as Assessor's Parcel Number (APN): 124-340-34-00.

A review of historical aerial photographs indicates that the Project Site has remained undeveloped from at least 1938 to present day. No indications of agricultural use were identified.

The District is listed as the legal owner of the Project Site. The deed is dated May 12, 2014. The title is vested in the District and was received from Fallbrook Unified High School District. No environmental liens or AULs were identified for the Project Site.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (*Community Panel Number: 06073C0480G, Effective Date: May 16, 2012),* the Project Site is located in Zone X – areas determined to be outside the 0.2% (500-yr) annual chance flood.

According to the San Diego Air Pollution Control District (SDAPCD) online database, there is one facility located within a ¼-mile radius registered with an emissions permit. The Gulf Club of California's maintenance facility is located adjacent and south of the Project Site. This facility maintains a permit to operate a 2,235-gallon fuel aboveground storage tank (AST). This type of equipment does not emit reportable quantities of hazardous air emissions. Therefore, the AST is not considered a REC to the Project Site.

According to the Rainbow Municipal Water District, there is a 12-inch water line and a 12-inch gravity sewer line located beneath Gird Road which is located east and adjacent to the Project Site. Additionally, there is an abandoned 4-inch water pipeline and metering station located in the northeast portion of the Project Site, and adjacent to Gird Road.

According to San Diego Gas & Electric (SDG&E) there are no high-pressure natural gas pipelines (NGP) located within 1,500 feet of the Project Site. According to the U.S. DOT PHMSA website (www.npms.phmsa.dot.gov), there are no hazardous liquid pipelines located within 1,500 feet of the Project Site.

According to SDG&E there are no high voltage power transmission lines located within 350 feet of the Project Site. Pole-mounted electric powerlines located along Gird Road are 12kV.

Padre completed a site reconnaissance on April 8, 2016. No building structures were observed at the Project Site. No discarded petroleum and/or chemical containers were observed on the grounds of the Project Site. No petroleum and/or chemical stained soils were observed. No aboveground or underground petroleum fuel tanks were identified at the Project Site. No chemical waste disposal, landfills, and/or burn pits were observed at the Project Site.

The environmental agency database information obtained from Environmental Data Resources, Inc. (EDR) did not identify any environmental violations and/or documented environmental incidents regarding the Project Site and/or properties located within the required search distances that may be anticipated to present an environmental concern to the Project Site.

Based on the findings of this Phase I ESA, Padre recommends a “No Further Action” designation from the Department of Toxic Substances Control (DTSC) for the Project Site.

INTRODUCTION

Padre Associates, Inc. (Padre), on behalf of Bonsall Unified School District (District) has completed a Phase I environmental site assessment (ESA) and Title V environmental hazards evaluation for the proposed new school site (Project Site) located west of the intersection of Gird Road and Live Oak Creek Circle, in Fallbrook, San Diego County, California (Project Site).

The objective of the ESA was to determine whether current or previous land use at or adjacent to the Project Site may have involved, or resulted in the use, storage, disposal, treatment, and/or release of hazardous substances to the environment. The ESA was completed consistent with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments (E-1527-13).

To achieve the objective of the ESA, the following tasks were completed:

- A review of readily available geologic and hydrogeologic literature;
- Historical research including a review of historical aerial photographs; Sanborn Fire Insurance Maps, and historical topographic maps relating to the Project Site;
- A site reconnaissance of the Project Site and properties within a ½ mile;
- Interviews with knowledgeable persons;
- Public agency records review;
- An environmental database search;
- Performing all appropriate inquiries (AAIs);
- Identifying recognized environmental conditions (RECs); and
- Identifying historical recognized environmental conditions (HRECs);
- Identifying control recognized environmental conditions (CRECs), including activity and use limitations (AULs);
- Identifying vapor migration environmental conditions (VEC); and
- The preparation of this report presenting the results of the ESA.

Definitions:

Recognized Environment Conditions (RECs) - the presence or likely presence of any hazardous substances or petroleum products in, on, or at the property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of future release to the environment. De minimis conditions are not recognized environmental conditions.

Historic Recognized Environment Conditions (HRECs) - a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has

been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to an require controls (ie., property use restrictions, activity and use limitations, institutional controls and engineering controls).

Controlled Recognized Environment Conditions (CRECs) - a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidence by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (i.e., property use restrictions, activity and use limitations, institutional controls and engineering controls).

Activity Use Limitations (AULs) – legal or physical restrictions or limitations on the use of, or access to, a site or facility: (1) to reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil, soil vapor, groundwater, and/or surface water on the property, or (2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment.

Migrate/Migration – refers to the movement of hazardous substances or petroleum products in any form, including solid and liquid at the surface and subsurface, and vapor in the subsurface.

The environmental hazards evaluation consisted of completing a review of hazards as described in California Code of Regulations, Title V, Sections 14010 et seq. The environmental hazards evaluation will identify the presence and/or absence of the following:

- Facilities that might reasonably be anticipated to emit hazardous air emissions or hazardous materials handlers within a ¼-mile of the Project Site;
- High volume (≥12 inches) water pipelines on or near the Project Site;
- High pressure natural gas and/or liquid petroleum pipelines located within 1,500 feet of the Project Site;
- High voltage power transmission lines located within 500 feet of the Project Site and transformers of cell towers on or near the Project site;
- Airports located within 2-nautical miles of the Project Site;
- Railroad tracks located within 1,500 feet of the Project Site;
- Earthquake faults or traces on or near the site; and identify if the Project Site is located in an Alquist-Priolo Earthquake Fault Zone;
- Flood hazard and dam inundation;
- Water/fuel storage tanks on or near the Project Site; and

- Traffic corridor (freeway or other busy traffic corridor) located within 500 feet of the Project Site.

Seven appendices are included with this report. Appendix A presents the assessor's parcel map and Flood Insurance Rate Map; Appendix B presents historical aerial photographs and topographic maps; Appendix C presents photographs of the Project Site at the time of the assessment; Appendix D presents a copy of the property owner questionnaire; Appendix E presents utility information responses; Appendix F presents represents the environmental database report obtained from EDR for the Project Site; and Appendix G presents the qualifications of the environmental assessor responsible for report preparation.

2.0 ENVIRONMENTAL SETTING

The following discussion summarizes the geologic, hydrogeologic, and other relevant data pertaining to the physical setting of the Project Site.

2.1 SITE LOCATION AND DESCRIPTION

The Project Site is located in Section 09, Township 10 South, Range 03 West, of the Bonsall Quadrangle, California USGS 7½-Minute Series, Topographic Map. Approximate latitude and longitude near the center of the Project Site are identified to be:

- Latitude (North) 33° 19' 19.71" N (33.3221410)
- Longitude (West) 117° 11' 45.06" W (-117.1958510)

The Project Site consists of 49.78 acres and is identified by the San Diego County Assessor's Office as Assessor's Parcel Numbers (APNs) 124-340-34-00. Refer to **Plate 1** - Site Location Map and **Plate 2** - Site Plan. A copy of the assessor's parcel map is presented in **Appendix A**.

2.2 TOPOGRAPHY AND DRAINAGE

Based on a review of the USGS 7.5-minute series topographic map, Bonsall Quadrangle, California (photorevised 1975), the Project Site lies at an elevation ranging from 240 feet to 290 above mean sea level (msl). The Project Site is generally uneven, however, the effective drainage of the Project Site is to the southeast. Live Oak Creek is located approximately 500 feet east of the Project Site and drains south to The San Luis Rey River which is located approximately 1,500 feet south of the Project Site.

2.3 GEOLOGY AND HYDROGEOLOGY

The Project Site is located within the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges stretch approximately 900 miles from the Los Angeles Basin to the southern tip of the Baja California Peninsula and are bounded to the east by the Colorado Desert. The Peninsular Ranges Province is divided into three major fault bounded tectonic blocks within the San Andreas Fault System, consisting of the Santa Anna, Perris, and San

Jacinto Blocks. The ranges are seismically active and include parts of four major northwest-striking, right-lateral strike slip Pacific and North American plate boundary fault zones. These include the Elsinore fault zone to the east, the Newport-Inglewood-Rose Canyon offshore fault zone to the west, and the Coronado Bank fault, and San Diego Trough fault zone to the southwest (Norris and Webb, 1990).

According to the California Geological Survey Geologic Map of the Bonsall 7.5' Quadrangle Sheet, San Diego County, California, 2000 the Project Site is underlain by Quaternary (older) alluvium flood plain deposits.

According to the United States Department of Agriculture, Soil Conservation Service's, Soil Survey of San Diego County, California dated April 1973; the Project Site includes four main soil-mapping units; Ramona sandy loam (slopes 5 to 9 percent), Ramona (slopes 9 to 15 percent), Grangeville fine sandy loam (slopes 0 to 2 percent), and Altamont clay (slopes 9 to 15 percent).

The Ramona sandy loam (5 to 9 percent slopes) consists of well-drained soil that is formed from alluvium derived from granitic and schistose rocks on alluvial fans and terraces. In a representative profile the surface layer is yellowish-brown to light brown, moderately acidic gravelly sandy loam about 17 inches thick. The underlying material is yellowish-red to red, strongly acidic sandy clay loam about 43 inches thick. Available water storage in profile is about 14.9 inches. Permeability is moderately slow, runoff is medium, and the erosion hazard is considered moderate.

The Ramona sandy loam (9 to 15 percent slopes) consists of well-drained soil that is formed from alluvium derived from granitic and schistose rocks on alluvial fans and terraces. This strongly sloping soil is 15 to 20 percent gravel. In a representative profile the surface layer is yellowish-brown to light brown, moderately acidic gravelly sandy loam about 10 inches thick. The underlying material is yellowish-red to red, strongly acidic sandy clay loam about 50 inches thick. Available water storage in profile is about 16.2 inches. Permeability is moderately slow, runoff is medium, and the erosion hazard is considered moderate.

The Grangeville fine sandy loam (0 to 2 percent slopes) consists of very deep, somewhat poorly-drained soil that is derived from moderately coarse granitic alluvium. In a representative profile the surface layer is grayish-brown to light brown, moderately alkaline fine sandy loam about 11 inches thick. The underlying material is very dark grayish-brown, moderately alkaline very fine to fine sandy loam about 49 inches thick. Available water storage in profile is about 21.9 inches. Permeability is moderately rapid, runoff is very low, and the erosion hazard is slight.

The Altamont clay (9 to 15 percent slopes) consists of well-drained soil that is derived from calcareous shale. Vegetation in uncultivated areas is mainly annual grasses and scattered shrubs. In a representative profile the surface layer is dark brown, neutral to moderately alkaline clay about 28 inches thick. The underlying material is dark brown to light olive-brown, moderately alkaline heavy clay loam about 8 inches thick. Available water storage in profile is about 6.7 inches. Permeability is slow, runoff is medium, and the erosion hazard is moderate.

The Project Site is located in the San Luis Rey Valley Groundwater Basin, which underlies an east-west trending alluvium filled valley and is bounded on the east, northeast and southeast by the contact of alluvium with impermeable Mesozoic granitic and Pre-Cretaceous metamorphic rocks. The major hydrologic feature is the San Luis Rey River, which drains the valley overlying the basin. The principal water bearing deposits within the basin are Quarternary and younger alluvium which have an average thickness of 200 feet and depth to groundwater ranges from 0 to 20 feet below ground surface (bgs). Estimated storage capacity for the basin is 240,000 acre feet and well yields can exceed 2,000 gallons per minute (gpm) and average 500 gpm (DWR California Groundwater Bulletin 118, 2004).

2.4 FLOODPLAIN

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, *Community Panel Number: 06073C0480G, Effective Date May 16, 2012*, the Project Site is mapped as being located in Zone X - areas determined to be outside the 0.2% (500-yr) annual chance flood. A copy of the flood insurance rate map is presented in **Appendix A**.

2.5 RADON

Radon is a colorless, odorless, tasteless, and radioactive gas that is produced as a natural decay product of uranium. Because of its radioactivity, studies have shown that at elevated concentrations there is a link between radon and lung cancer. Persons living in a building with elevated radon concentrations may have an increased risk of contracting lung cancer over a period of years.

Sections 307 and 309 of the Indoor Radon Abatement Act of 1988 (IRAA) directed the United States Environmental Protection Agency (U.S. EPA) to list and identify areas of the United States with the potential for elevated indoor radon levels. The U.S. EPA's Map of Radon Zones assigns each of the 3,141 counties in the U.S. to one of three zones based on radon potential:

- Zone 1 (red zones: highest potential) – counties have a predicted average indoor radon screening level greater than 4 pico curies per liter (pCi/L);
- Zone 2 (orange zones: moderate potential) – counties have a predicted average indoor radon screening level between 2 and 4 pCi/L; and
- Zone 3 (yellow zones: lowest potential) – counties have a predicted average indoor radon screening level less than 2 pCi/L.

According to the U.S. EPA map of California radon zones, San Diego County is identified as a Zone 3 (yellow) county. Zone 3 counties have a predicted average indoor radon screening level of less than 2 pCi/L. According to the California database of indoor radon levels sorted by Zip Code, only 4 site tests out of 59 county in San Diego County with a 92028 zip code were identified with radon levels >4 pCi/L. Therefore, the potential for radon hazard at the Project Site is considered low and is dependent on building construction specifications.

2.6 OIL AND GAS WELLS

The California Division of Oil, Gas, and Geothermal Resources (DOGGR) oversees the drilling, operation, maintenance, and plugging and abandonment of oil wells, natural gas wells, and geothermal wells. The DOGGR regulatory program emphasizes the wise development of oil, natural gas, and geothermal resources in the state of California through sound engineering practices that protect the environment, prevent pollution, and ensure public safety. Padre reviewed the State of California, Division of Oil, Gas and Geothermal Resources (DOGGR) online mapping system to determine whether any oil and gas wells are located at or in the vicinity of the Project Site.

Based on a review of the available DOGGR data, no active or abandoned oil and/or gas wells were identified within a one-mile radius of the Project Site.

2.7 NATURALLY OCCURRING ASBESTOS (NOA)

Asbestos is a naturally occurring silicate mineral of the amphibole group that has historically been utilized for a variety of purposes including fireproofing, due to its fibrous nature, which allowed it to be woven into cloth and formed into various types of construction material. Asbestos is a known carcinogen.

According to the California Department of Conservation, Division of Mines and Geology, Open-File Report 2000-19, dated August 2000, natural occurrences of asbestos are more likely to be encountered in, and immediately adjacent to, areas of ultramafic outcrops (igneous and metamorphic rocks with high iron and magnesium contents). For school sites located within 10 miles of potentially asbestos-bearing ultramafic outcrops, the Department of Toxic Substances Control (DTSC) typically recommends an assessment of onsite soils.

According to the California Geological Survey Geologic Map of the Oceanside Quadrangle (2007 – 1:100,000), the nearest exposure of potentially asbestos-bearing ultramafic rocks is located a distance greater than 10 miles from the Project Site. Based on the distance of the Project Site from the nearest mapped exposure, the potential for exposure to elevated levels of NOA in soils at the Project Site is considered low.

3.0 HISTORICAL SITE CONDITIONS

Based on a review of readily available historical information, Padre has compiled the following history of the Project Site. The earliest documentation reviewed for site usage was a historical aerial photograph dated 1938, and a historical topographic map dated 1901. Copies of historical aerial photographs and topographic maps are presented in **Appendix B**.

3.1 HISTORICAL AERIAL PHOTOGRAPHS

Padre reviewed readily available aerial photographs of the Project Site and the surrounding area obtained from EDR for the years 1938, 1946, 1953, 1964, 1967, 1970, 1985, 1989, 1994, 2005, and 2012. The information is summarized below.

1938 The 1938 photograph shows the Project Site in the middle of a largely undeveloped field. The Project Site appears devoid of significant vegetation with the exception of one tree. Gird Road is located adjacent and east of the Project Site and Highway 76 is south of the Project Site. There is a farm northeast of the Project Site.

1946 The 1946 photograph shows the Project Site similar to the 1938 photograph. The areas surrounding east of the Project Site appears to be agricultural.

1953 The 1953 photograph shows a new unpaved road on the west side of the Project Site. A detention basin is observed southwest of the Project Site. There is further development of the agricultural property to the east.

1964 The 1964 photograph shows the Project Site similar to the 1953 photograph. Gird Road has be reconstructed to follow the perimeter of the Project Site. The agricultural land east of the Project Site has continued to develop.

1967 The Project Site and surrounding areas appear similar to the 1964 photograph.

1970 The 1970 photograph shows the Project Site and surrounding area similar to the 1967 photograph.

1985 The quality of the 1985 aerial photograph is poor and the color scheme is altered. There is a new unpaved road on the Project Site which connects the old onsite road to Gird Road. There is significant new vegetation in the corners and along the perimeter of the Project Site. The agricultural land adjacent and east of the Project Site has continued to develop. There are orchards east of the agricultural land.

1989 The 1989 photograph shows the addition of several unpaved roads to the Project Site. The farm northeast of the Project Site has become a residential development and the land adjacent and east of the Project Site is no longer agricultural.

1994 The 1994 photograph shows the Project Site similar to the 1989 photograph. The land to the north of the Project Site appears to be agricultural or preparing for the residential development.

2005 The 2005 photograph shows the Project Site similar to the 1994 photograph. The land west and south of the Project Site has been developed into a golf course. The land north of the Project Site is a residential development. The land east of the Project Site appears to be agricultural residences.

2012 The 2012 photograph shows the Project Site and surrounding area similar to the 2005 photograph.

3.2 UNITED STATES GEOLOGICAL SURVEY TOPOGRAPHIC MAPS

Padre obtained historical topographic maps published by the USGS for the vicinity of the Project Site. Historical topographic maps dated 1901, 1949, 1968, 1975, and 2012 were reviewed. A summary of the information presented on each map is presented below.

1901 The 1901 map shows the Project Site as undeveloped and located approximately 300 feet above msl. Gird Road is shown as unpaved and Highway 76 is shown as paved.

1949 The 1949 map shows the Project Site as undeveloped. The Project Site is at an elevation of approximately 280 above msl. Gird Road and Highway 76 are shown as paved. There is a body of water southwest of the Project Site.

1968 The 1968 map shows an unpaved road on the west side of the Project Site. There are two additional bodies of water north of the body of water from the 1949 map.

1975 The 1975 map shows the Project Site and surrounding area similar to the 1968 map.

2012 The 2012 map shows no roads on the Project Site. There are several additional paved roads that have been added since the 1975 map.

3.3 HISTORICAL SANBORN FIRE INSURANCE MAPS

The complete Sanborn Library collection was searched by EDR for the Project Site. According to EDR, fire insurance maps covering the target property were not found.

3.4 CITY DIRECTORIES

EDR searched select national repositories of business directories. City, cross reference, and telephone directories were reviewed at five year intervals for the years spanning 1970 through 2013. Sources researched included Cole Information Services and Haines Criss-Cross Company Directory. Padre did not identify a listed address for the Project Site.

Surrounding properties listed in the City Directories consisted of private residences; Mulberry Farms (breeder of silkworms); California Koi Farms, Inc.; Lang Park Arabians (Stud Farm); and Sierra Growers (not listed after 1980). Based on the status and locations of these facilities, the do not present a REC to the Project Site.

3.5 ENVIRONMENTAL LIENS

Padre reviewed the EDR Environmental Lien and activity use limitations (AULs) search report of available current land title records for environmental cleanup liens and other AULs such as engineering controls and institutional controls. The legal current owner for APN 124-340-034-00 is the District. The deed is dated May 12, 2014 and was recorded on July 29, 2014.

The title was received from the Fallbrook Union High School District. No environmental liens or AULs were identified for the Project Site.

3.6 EXISTING ENVIRONMENTAL REPORTS

Padre was not provided with nor did we identify any existing environmental reports for the Project Site or any properties in the vicinity of the Project Site.

4.0 CURRENT SITE CONDITIONS

The current site conditions were assessed to determine current activities and hazardous substances handling and storage at the Project Site.

4.1 SITE RECONNAISSANCE

On April 8, 2016 Mr. Jerome Summerlin of Padre performed a site reconnaissance at the Project Site. Access was coordinated with Mr. Carlos Rodriquez with District's Maintenance Department. The Project Site is not being utilized for agricultural production, consist mostly of grassland with scattered clusters of trees near the property boundaries. The Golf Club of California is located adjacent and west of the Project Site. The western border of the Project Site is not well defined and there is a significant amount of tree trimmings and other vegetation debris along the southern half of the western property boundary.

No building structures were observed at the Project Site. No discarded petroleum and/or chemical containers were observed on the grounds of the Project Site. No petroleum and/or chemical stained soils were observed. No aboveground or underground petroleum fuel tanks were identified at the Project Site. No chemical waste disposal, landfills, and/or burn pits were observed at the Project Site.

An above ground propane tank was observed at the Golf Club of California maintenance facility, located south and adjacent to the Project Site. Additionally, an above ground fuel tank was observed at the same facility. An aboveground, 4-inch pipeline and metering station was observed on the eastern border of the Project Site, just south of the access gate. Based on street markings and a utility porthole, the above ground pipeline appears to be an abandoned water pipeline and meter station. According to Rainbow Municipal Water District (Rainbow), the pipeline and metering station was abandoned in September, 2009. Additionally, no structures, water-wells, or electrical transformers were observed on the Project Site. Photographs taken during the course of the site visit are presented in **Appendix C**.

4.2 ASBESTOS-CONTAINING MATERIALS

Padre did not conduct a comprehensive Asbestos-Containing Materials (ACM) survey as part of this Phase I ESA. Properties with residential and/or commercial structures constructed before 1976 may potentially contain ACM. The mitigation and management of ACM is currently regulated by several federal, state, and local agencies.

A review of historical aerial photographs and topographic maps indicates that no building structures have been present on the Project Site. Therefore, the potential for ACM at the Project Site from building materials is not considered a REC.

4.3 LEAD-BASED PAINT

Properties containing structures with paint or surface coatings, with the exception of residential structures constructed on or after January 1, 1979 or schools constructed prior to January 1, 1993, may have surfaces coated with lead-based paint. Weathering, scraping, chipping, and abrasion may cause lead to be released to and accumulate in soil around these structures. Therefore, the California Department of Toxic Substances Control (DTSC) School Property Evaluation and Cleanup Division recommends the collection of soil samples to determine if the potential presence of residual lead soil contamination poses a threat to human health and the environment.

A review of historical aerial photographs and topographic maps indicates that no building structures have been constructed on the Project Site. Therefore, the potential for residual lead in soil from weathering of lead-based paint at the Project Site is not considered a REC.

4.4 POLYCHLORINATED BIPHENYLS

Padre did not conduct a comprehensive polychlorinated biphenyls (PCBs) survey as part of this Phase I ESA. PCBs have been used as coolants and lubricants in electrical transformers, capacitors, and other electrical equipment because they do not burn easily and are good insulators. The manufacture of PCBs was stopped in the U.S. in 1977. Products made before 1977 that may contain PCBs include old fluorescent lighting fixtures and electrical devices containing PCB capacitors, and old microscope and hydraulic oils.

During site reconnaissance activities performed on April 8, 2016, no electrical transformers were observed on the Project Site. Therefore, the potential for PCBs to be present in soil at the Project Site from this source is not considered a REC.

4.5 TERMITICIDES

Organochlorine pesticides (OCPs) were commonly used as insecticides for termite control around structures and typically applied surficially to soil surrounding foundations and injected into the soil in an effort to isolate wood structures from termite nests. Chlordane was used in the United States from 1948 until 1988, when it was banned by the United States Environmental Protection Agency (U.S. EPA). Because of evidence of human exposure and accumulation in body fat, as well as persistence in the environment and effects on wildlife, the U.S. EPA prohibited the use of chlordane in 1988.

DTSC conducted an investigation of three proposed school sites in southern California with residential structures to evaluate the presence and prevalence of chlordane and other OCPs as a result of termiticide application. Additionally, DTSC investigated OCPs from termiticide application at residential properties proposed for school sites in various counties

throughout California. The results of the study indicated that it is likely that significant concentrations of OCP residues may exist around structures with wood components built prior to January 1, 1989, and should be evaluated at school sites.

A review of historical aerial photographs and topographic maps indicates that no building structures have been present on the Project Site. Therefore, the potential for residual pesticides in soil from direct application of termiticides at the Project Site is not considered a REC.

4.6 PROPERTY OWNER QUESTIONNAIRE

A Project Site environmental questionnaire was completed by Mr. David Medcalf, Director of Facilities, Maintenance, and Transportation for the District, on May 26, 2016. According to Mr. Medcalf, the District has owned the property since April 15, 2014. The previous owner was identified as the Fallbrook Union High School District. The Project Site is currently and has historically been vacant and undeveloped. Mr. Medcalf confirmed that no water wells, landfills/burn pits, or detention basins associated with waste treatment or disposal are located onsite. A copy of the completed property owner questionnaire if presented in **Appendix D**.

4.7 SURROUNDING PROPERTIES

The Project Site is bordered to the north by a residential neighborhood; to the east by Gird Road, beyond which is agricultural land; to the south and west by Wedgewood Fallbrook Wedding and Banquet Center and the Golf Club of California.

5.0 ENVIRONMENTAL RECORDS REVIEW AND TITLE V HAZARDS EVALUATION

Padre contacted the regulatory agencies in the region to determine if soil and groundwater contamination is known or suspected at or near the Project Site. Regulatory agency databases were obtained from EDR for the Project Site and properties within one mile.

5.1 PUBLIC RECORDS REVIEW AND AGENCY CONTACTS

Padre contacted the following local agencies for information concerning environmental complaints, accidents, or spills on or in the vicinity of the Project Site and for safety concerns related to school sites in California.

5.1.1 San Diego County Air Pollution Control District

Padre contacted Ms. Cindy Gould of the San Diego Air Pollution Control District (SDAPCD) and requested a grid search for facilities located within ¼ - mile of the Project Site that are permitted to produce hazardous air emissions. Ms. Gould directed Padre to the County of San Diego CivicData database. Padre reviewed and CivicData database and determined that there is one facility located within ¼ - mile of the Project Site that is permitted to produce hazardous air emissions. The Gulf Club of California's maintenance facility is located adjacent and south of the Project Site. This facility maintains a permit to operate a 2,235-gallon fuel

aboveground storage tank (AST). This type of equipment does not emit reportable quantities of hazardous air emissions. Therefore, the AST is not considered a REC to the Project Site.

5.1.2 Rainbow Municipal Water District

Padre contacted Rainbow with a public information request regarding the presence of high volume water pipelines (≥12 inch diameter) located on or adjacent to the Project Site. According to Sherry Kirkpatrick, Engineering Manager at Rainbow, there is a 12-inch diameter water pipeline located beneath Gird Road. The failure of this pipeline would result in water flowing down Gird Road and generally southeast towards Live Oak Creek, away from the Project Site. Additionally, during site reconnaissance Padre identified an aboveground 4-inch water pipeline and meter located on the east perimeter of the Project Site. According to Sherry Kirkpatrick, the pipeline and meter were abandoned in September, 2009. Pipeline information provided by Rainbow is presented in **Appendix E.**

5.1.3 High Pressure Natural Gas and Fuel Transmission Pipelines

Padre contacted San Diego Gas & Electric (SDG&E) to inquire about the presence of high-pressure natural gas lines within 1,500 feet of the Project Site. According Mr. Jeffery Sykes, Land Services Manager with SDG&E, there are no high-pressure natural gas pipelines (NGP) located within 1,500 feet of the Project Site.

According to the U.S. DOT PHMSA website (www.npms.phmsa.dot.gov), there are no hazardous liquid pipelines located within 1,500 feet of the Project Site.

5.1.4 High Voltage Electric Power Lines

In consultation with the State Department of Health Services (DHS) and electric power companies, CDE has established the following limits for locating any part of a school site property line near the edge of easements for high-voltage power transmission lines:

- 100 feet from the edge of an easement for a 50-133 kilovolt (kV) line;
- 150 feet from the edge of an easement for 220-230 kV line; and
- 350 feet from the edge of an easement for a 500-550 kV line.

Padre contacted the SDG&E to inquire about the presence of high voltage power transmission lines located within 350 feet of the proposed school site. According to Jeffery Sykes, Land Services Manager at SDG&E, there are no high voltage power transmission lines located within 350 feet of the Project Site. Pole-mounted electric powerlines located along Gird Road are 12kV.

5.1.5 Airports

Padre reviewed the California Department of Transportation (DOT), Division of Aeronautics database; the USGS topographic maps, Bonsall Quadrangle, California, 1975; and

the Google Earth satellite image dated April, 2016. Based on a review of these sources, no airports were identified within two nautical miles of the Project Site.

5.1.6 Railroads

Padre reviewed the USGS topographic maps, Bonsall Quadrangle, California, 1975; the Google Earth satellite image dated April, 2016, and conducted a site reconnaissance on April 8, 2016. Based on a review of these sources, no railroad tracks were identified within 1,500 feet of the Project Site.

5.1.7 Earthquake Fault Zones

In 1972 the State of California passed the Alquist-Priolo Earthquake Fault Zoning Act (AP Act) to mitigate the hazard of surface faulting to structures utilized for human occupancy. The AP Act's primary purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The AP Act defines three categories of fault activity; active (demonstrated movement within the last 11,000 years), potentially active (movement within the past 11,000 to 2,000,000 years), and inactive (no movement within the past 2,000,000 years).

Since 1972 the California Geological Survey (CGS, formerly the California Division of Mines and Geology) has issued a series of 1"=2,000' scale maps delineating Earthquake Fault Zones (EFZs). Structures proposed within mapped EFZs require geologic investigations to demonstrate that the structures will not be constructed across active faults. If an active fault is identified within the boundaries of the Project Site, the proposed structures must be set back from the EFZ, generally a distance of 50 feet on either side of the identified fault location. The CGS mapping program is ongoing, and areas not currently identified as being within an EFZ may be included at some later time.

According to Earthquake Fault Zone (EFZ) maps issued by the California Geological Survey (CGS, formerly the California Division of Mines and Geology), the Project Site is not located within the boundaries of an Alquist-Priolo Earthquake Fault Zone, and no active faults are known to cross the Project Site (Jennings 2010).

5.1.8 Dam Inundation

Catastrophic failure of dams is rare, and is most likely to occur following significant seismic events. The nearest dams of significant size are the Red Mountain Reservoir Dam and the Henshaw Dam.

The Red Mountain Reservoir Dam, is located approximately 5 miles north of the Project Site, and is an earthen dam constructed between 1983 and 1985 and is owned by the Fallbrook Public Utilities District. Red Mountain Reservoir is 120 feet high and 1,500 feet long, and forms a reservoir with a capacity of 1,350 acre-feet. Dam failure would result in reservoir waters draining south towards to the San Luis Rey River and the Project Site. According to CSDOES, the Red Mountain Reservoir Dam has a dam placement/relative hazard rating of high.

The Henshaw Dam, is located approximately 25 miles east of the Project Site, and is an earthen dam constructed between 1922 and 1923 and is owned by the Vista Irrigation District. The dam is 123 feet high, 650 feet in length, and forms a reservoir with a capacity of 55,000 acre-feet. Dam failure would result in reservoir waters draining west along the San Luis Rey River and towards the Project Site. According to the County of San Diego Office of Emergency Services (CSDOES), Henshaw damn has a dam placement/relative hazard rating of high.

The Project Site is not located within a County of San Diego Designated Dam Inundation Area. However, it should be noted that according to the San Diego County Dam Inundation Map (May 2009). The inundation area of Live Oak Creek from the Red Mountain Reservoir Dam, approaches the Project Site's eastern property boundary.

5.1.9 Aboveground Water and/or Fuel Storage Tanks

Padre observed a relatively small above ground propane tank (photo #11), and fuel AST (photo #10), located at the Golf Club of California's maintenance facility, which is south and adjacent to the Project Site. The maintenance facility is located at a lower elevation than Project Site, and neither of the ASTs were listed by the APCD to emit reportable quantities of hazardous air emissions.

5.1.10 Traffic Corridor

CDE defines freeways or busy traffic corridors as 100,000 vehicles per day in urban areas. Padre reviewed the California Department of Transportation (Caltrans) 2014 Annual Average Daily Traffic (AADT) Volume database for information regarding traffic corridors within 500 feet of the Project Site. No busy traffic corridors were identified within 500 feet of the Project Site.

A summary of the Title V environmental hazards evaluation is presented in **Table 1** below:

Table 1 – Title V Environment Hazards Summary

Site Identification	Power Lines within 350-ft or Cell Towers on or near the site	Railroad tracks within 1500-ft	Earthquake Fault Zone (EFZ)	Flood Hazard	Dam Inundation	Large abovegroundwater/fuel tanks
Gird Road Property (49.78 ac)	No	No	No	No	No[(1)]	No[(2)]

Table 1 – Title V (continued)

Site Identification	Natural Gas pipeline(s) (>80 psig)	Hazardous Liquid Pipeline(s)	High Volume Water Pipeline(s) (≥12-inches),	Freeway or other busy traffic corridor within 500-ft	Facilities with hazardous air emissions within ¼ mile	Airports within 2-nautical miles
Gird Road Property (49.78 ac)	No	No	**Yes**[3]	No	No	No

Notes:

Yes – Additional studies/information may be required by CDE.
No – Additional studies do not appear necessary.

(1) – The inundation area of Live Oak Creek from the Red Mountain Reservoir Dam, approaches the Project Site's eastern property boundary.
(2) – There is a relatively small above ground propane tank and fuel tank located on the adjacent property, to the south. Based on size and location additional studies do not appear warranted.
(3) – A 12-inch diameter water pipeline is present along Gird Road. This pipeline is located at a lower elevation than the Project Site, and further evaluation may not be warranted.

5.2 ENVIRONMENTAL DATABASE INFORMATION

Padre obtained environmental agency database information from EDR. The EDR report is included as **Appendix F**. The databases were reviewed to identify registrations and documented environmental incidents regarding the site and nearby properties within a one mile radius of the Project Site. Padre also attempted to locate unplottable sites that EDR did not locate because of incomplete or incorrect address information. The following sections summarize our findings.

5.2.1 National Priorities List - Federal Superfund

The National Priorities List is a U.S. Environmental Protection Agency (U.S. EPA) listing of private, state, and federally owned sites which have been included on the federal Superfund list for remediation.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the National Priorities List.

5.2.2 U.S. EPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), Now Known As Superfund Enterprise Management System (SEMS)

The U.S. EPA's CERCLIS (renamed SEMS in 2015) Listings and are a compilation of sites that have been brought to the attention of the U.S. EPA, through various means, as being

possible sites of hazardous waste activity. The CERCLIS/SEMS listings are an information database and not necessarily an action list.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the CERCLIS/SEMS List.

5.2.3 RCRA-TSDF List

The U.S. EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA-Transportation, Storage, and Disposal Facilities (TSDF) database is a compilation by the U.S. EPA of reporting facilities that transport, treat, store, or dispose of hazardous waste.

- Neither the Project Site nor properties located within a ½-mile radius of the Project Site are identified on the RCRA-TSDF List.

5.2.4 RCRA - LQG's List

The U.S. EPA's RCRA Program identifies and tracks large quantity generators (LQG's). LQG's generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg acutely hazardous waste per month.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the RCRA-LQG's List.

5.2.5 RCRA - SQG's List

The U.S. EPA's RCRA Program identifies and tracks small quantity generators (SQG's). SQG's generate between 100 kg and 1,000 kg of hazardous waste per month.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the RCRA-SQG's List.

5.2.6 Emergency Response Notification System

The Emergency Response Notification System (ERNS) contains records on releases of oil and hazardous substances reported to the U.S. EPA and National Response Center of the U.S. Coast Guard.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the ERNS List.

5.2.7 RCRA-CORRACTS Facilities List

The U.S. EPA's Resource Conservation and Recovery Act (RCRA) Corrective Action Sites Listing contains information pertaining to hazardous waste treatment, storage, and disposal facilities (RCRA TSD) which have conducted, or are currently conducting, a corrective action(s) as regulated under RCRA.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the RCRA-CORRACTS List.

5.2.8 SWF/LF (SWIS) List

State and Tribal; landfill and/or solid waste disposal site listings. The Solid Waste Facility/Landfill facility (SWF/LF), solid waste information system (SWIS) maintains records of active, closed and inactive landfills.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the CA SWF/LF List.

5.2.9 UST List

USTs are regulated under Subtitle I of RCRA and must be registered with the state department responsible for administering the UST program. In California, the State Water Resources Control Board has compiled a listing of UST sites. Active UST facilities lists are gathered from local regulatory agencies.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the UST List.

5.2.10 Historical UST

The Hazardous Substance Storage Container Database is a historical listing of UST sites, and is maintained by the California State Water Resources Control Board.

- The Project Site is not identified on the Historic UST List; and
- One facility located within a ¼-mile radius of the Project Site is identified on the State Wide Environmental Evaluation Program SWEEPS UST List. However, the USTs identified in this report were removed in 1988, and thus they are considered historical USTs.

Development Coordinators was located northeast of the Project Site at 3640 Gird Road. According to the EDR Radius Report, the facility at this location once owned a 280-gallon and a 550-gallon UST, both of which were single walled and contained leaded gasoline for motor vehicle fueling. No violations have been reported at this location and the USTs were removed in September, 1988.

5.2.11 CA FID UST

The California Facility Inventory Database (CA FID) UST contains a historical listing of active and inactive underground storage tank locations from the State Water Resources Control Board.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the CA FID UST List.

5.2.12 Leaking Underground Storage Tank List

The California Regional Water Quality Control Board is the agency with jurisdiction over leaking underground storage tanks (LUSTs) in the region of the site.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the LUST List.

5.2.13 AST List

The Aboveground Storage Tank (AST) lists facilities with registered aboveground petroleum storage tanks, compiled by the State Water Resources Control Board (SWRCB).

- The Project Site is not identified on the AST List; and
- One facility located within a ¼-mile radius of the Project Site is identified on the AST List.

A 2,235-gallon fuel AST was reported to be located south and adjacent to the Project Site at 4045 Gird Road. The AST operates under APCD-2007 PTO-977700 and no leaks have been identified however, one violation is listed. In November 2012, Magnus Investment Group, Inc. (owner in relation to the Golf Club of California) was cited for not maintaining three years of manifests and/or receipts onsite. The AST is located at a lower elevation than the Project Site's adjacent southern property boundary. Therefore, the AST is not considered a REC to the Project Site.

5.2.14 US Eng Controls List

The US Engineering Controls list consists of sites with engineering controls in place that include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

- Neither the Project Site nor properties located within a ½-mile radius are identified on the US ENG Controls List.

5.2.15 US Inst Controls List

The US Institutional Controls list consists of sites with institutional controls in place that include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining onsite. Deed restrictions are generally required as part of the institutional controls.

- Neither the Project Site nor properties located within a ½-mile radius are identified on the US INST Controls List.

5.2.16 Historic Cal-Sites List

The State of California Historic Cal-Sites database contains potential or confirmed hazardous substance release properties. In 1996, the California Environmental Protection Agency reevaluated and significantly reduced the number of sites in the Cal-sites database.

- Neither the Project Site nor properties located within a ½-mile radius are identified on the Historic Cal-sites List.

5.2.17 WMUD/SWAT List

The Waste Management Unit Database System (WMUDS) is used by the State Water Resources Control Boards for program tracking and inventory of waste management units. The Solid Waste Assessment Test Program (SWAT) is a database maintained by the California Water Resources Control Board for information on the ground water monitoring of sanitary landfills.

- Neither the Project Site nor properties located within a ½-mile radius are identified on the WMUDS/SWAT List.

5.2.18 California Hazardous Materials Incident Reporting System

The California Hazardous Materials Incident Reporting System (CHMIRS) is maintained by the California Office of Emergency Services (OES) and contains information on reported hazardous materials accidental releases or spills.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the CHMIRS List.

5.2.19 CERCLIS-NFRAP List

The Comprehensive Environmental Response, Compensation, and Liability Information System - No Further Remedial Action Planned (CERCLIS-NFRAP) database is a list of sites that were removed CERCLIS in 1995. These sites may have been removed due to the following: after an initial investigation no contamination was found; contamination was removed quickly without the need to place the site on the NPL; or the contamination was not serious enough to require Federal Superfund action or NPL consideration. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

- Neither the Project Site nor properties located within a ½ -mile radius of the Project Site are identified on the CERCLIS-NFRAP List.

5.2.20 Voluntary Cleanup Program List

The Voluntary Cleanup Program database is maintained by the Department of Toxic Substances Control (DTSC). The VCP database contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have requested that DTSC

oversee the investigation and/or cleanup activities and have agreed to provide coverage for DTSC's Costs.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the VCP List.

5.2.21 Hazardous Waste Information System

The Hazardous Waste Information System (HAZNET) database is developed from copies of hazardous waste manifests required for proper disposal of wastes and received each year by the Department of Toxic Substances Control (DTSC).

- Neither the Project Site nor properties located within a ½-mile radius are identified on the on the HAZNET List.

5.2.22 California SLIC Program

The California SLIC (Spills, Leaks, Investigations, and Cleanup) is designed to protect and restore water quality from spills, leaks and similar discharges. The database is maintained by the State Water Resources Control Board (SWRCB).

- Neither the Project Site nor properties located within a 1-mile radius are identified on the CA SLIC List.

5.2.23 ENVIROSTOR List

The Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program (SMBRPs) maintain a database that identifies sites that have known contamination or sites for which there may be reasons to investigate further.

- Neither the Project Site nor properties located within a 1-mile radius are identified on the Envirostor Database.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the scope of services performed for this Phase I ESA and Title V Environmental Hazards Evaluation, Padre makes the following conclusions and recommendations regarding the Project Site:

A review of historical aerial photographs indicates that the Project Site has remained undeveloped from at least 1938 to present day. No indications of agricultural use were identified.

The District is listed as the legal owner of the Project Site. The deed is dated May 12, 2014. The title is vested in the District and was received from Fallbrook Unified High School District. No environmental liens or AULs were identified for the Project Site.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (*Community Panel Number: 06073C0480G, Effective Date: May 16, 2012),* the Project Site is located in Zone X – areas determined to be outside the 0.2% (500-yr) annual chance flood.

According to the San Diego Air Pollution Control District (SDAPCD) online database, there is one facility located within a ¼-mile radius registered with an emissions permit. The Gulf Club of California's maintenance facility is located adjacent and south of the Project Site. This facility maintains a permit to operate a 2,235-gallon fuel aboveground storage tank (AST). This type of equipment does not emit reportable quantities of hazardous air emissions. Therefore, the AST is not considered a REC to the Project Site.

According to the Rainbow Municipal Water District, there is a 12-inch water line and a 12-inch gravity sewer line located beneath Gird Road which is located east and adjacent to the Project Site. Additionally, there is an abandoned 4-inch water pipeline and metering station located in the northeast portion of the Project Site, and adjacent to Gird Road.

According to San Diego Gas & Electric (SDG&E) there are no high-pressure natural gas pipelines (NGP) located within 1,500 feet of the Project Site. According to the U.S. DOT PHMSA website (www.npms.phmsa.dot.gov), there are no hazardous liquid pipelines located within 1,500 feet of the Project Site.

According to SDG&E there are no high voltage power transmission lines located within 350 feet of the Project Site. Pole-mounted electric powerlines located along Gird Road are 12kV.

Padre completed a site reconnaissance on April 8, 2016. No building structures were observed at the Project Site. No discarded petroleum and/or chemical containers were observed on the grounds of the Project Site. No petroleum and/or chemical stained soils were observed. No aboveground or underground petroleum fuel tanks were identified at the Project Site. No chemical waste disposal, landfills, and/or burn pits were observed at the Project Site.

The environmental agency database information obtained from Environmental Data Resources, Inc. (EDR) did not identify any environmental violations and/or documented environmental incidents regarding the Project Site and/or properties located within the required search distances that may be anticipated to present an environmental concern to the Project Site.

Based on the findings of this Phase I ESA, Padre recommends a "No Further Action" designation from the Department of Toxic Substances Control (DTSC) for the Project Site.

7.0 LIMITATIONS

This report has been prepared by Padre Staff for the Bonsall Unified School District under the professional supervision of the principal and/or senior staff whose signatures and/or seals(s) appear hereon. Neither Padre, nor any employee assigned to this assessment program, has an interest or contemplated interest, financial or otherwise, in the subject site or surrounding properties, or in any entity that owns, leases, or occupies the subject site or surrounding properties or that may be responsible for environmental issues identified during the course of this assessment, or a personal bias with respect to the parties involved.

The information contained in this report has received appropriate technical review and approval. The conclusions represent professional judgment and are founded upon the findings of the assessment activities identified in the report and the interpretation of such data, based on our experience and expertise according to the existing standard of care. No other warranty or limitation exists, either expressed or implied.

In expressing the opinions stated in this report, Padre has exercised the degree of skill and care ordinarily exercised by a reasonable, prudent environmental professional in the same community and in the same time frame, given the same or similar facts and circumstances. Documentation and data provided by others, or from the public domain, and referred to in the preparation of this assessment, have been used and referenced with the understanding that Padre does not assume responsibility or liability for their accuracy.

-- o –

REFERENCES

California Department of Toxic Substances Control, Envirostor Database.

California Department of Transportation, Division of Aeronautics, Public Use Airports and Military Airfields – 2008.

California Department of Water Resources (http://www.water.ca.gov/waterdatalibrary/)

California Geological Survey, *A General Location Guide For Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos*. Open File Report 2000-19, 2000.

California Geological Survey, Geologic Map of the Bonsall 7.5' Quadrangle Sheet, San Diego County, California, 2000

California Geological Survey, Geologic Map of the Oceanside Quadrangle, San Diego, California, 2007

County of San Diego Assessor's Office.

County of San Diego, General Plan, August 2011.

Environmental Data Resources, Inc., EDR Radius Map with Geocheck – Gird Road Property, Gird Road/Live Oak Creek Circle, Fallbrook, CA 92028, April 1, 2016.

Environmental Data Resources, Inc., EDR Aerial Photographs Database, Aerial Photographs, 1938, 1946, 1953, 1964, 1967, 1970, 1985, 1989, 1994, 2005 and 2012.

Federal Emergency Management Agency, *Flood Insurance Rate Map- Community Panel Number: 06073C0480G,* Effective Date: May 16, 2012.

Google Earth, April, 2016.

Jennings and Bryant, 2010, Fault Activity Map of California, California Geological Survey.

Norris, R. M., & R. W. Webb, 1976 (Second Edition 1990), *Geology of California*, John Wiley & Sons, New York, pp. 412-427.

Pipeline and Hazardous Materials Safety Administration, National Pipeline Mapping System.

Rainbow Municipal Water District, Sherry Kirkpatrick.

San Diego Air Pollution Control District, Cindy Gould.

(www.civicdata.com/dataset/apcd_permitted_equipment_xml_9174)

San Diego Gas & Electric (SDG&E), Jeffery Sykes.

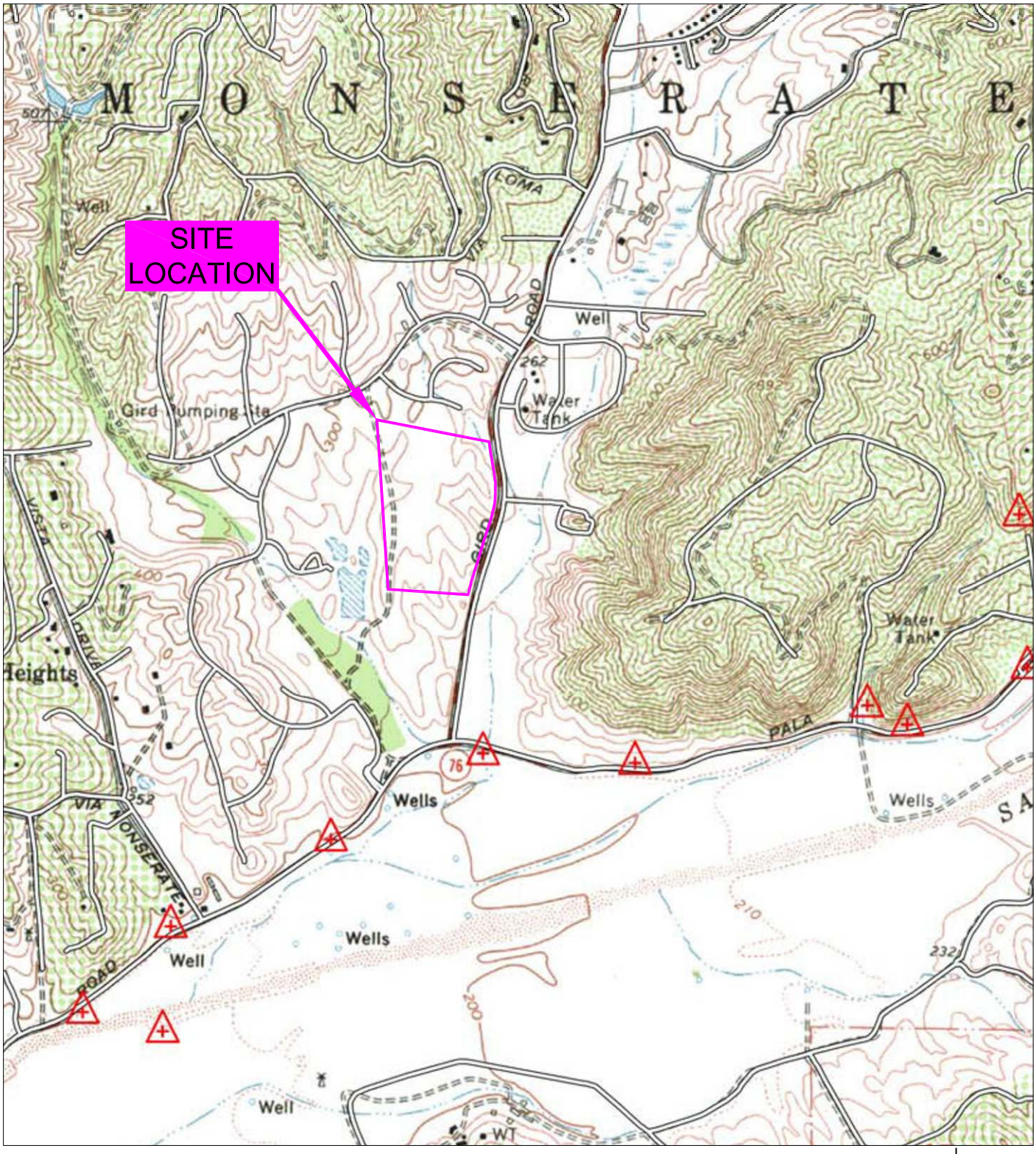
State of California Division of Oil, Gas, and Geothermal Resources Regional Maps, http://www.consrv.ca.gov/DOG/index.htm.

State Water Resources Control Board Geotracker website (http://geotracker.swrcb.ca.gov)

United State Department of Agriculture, National Resources Conservation Service, Soil Survey of San Diego County, California, December1973.

U.S. Geological Survey, Topographic Maps; Bonsall Quadrangle, California, 1901, 1949, 1968, 1975, and 2012.

PLATES



U.S.G.S. 7.5 MINUTE QUADRANGLE
BONSALL, CA 1968 (photoinspected 1975)

0 1500'
SCALE

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

NEW SCHOOL SITE – GIRD ROAD
BONSALL UNIFIED SCHOOL DISTRICT
FALLBROOK, SAN DIEGO COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-1111	4/4/16	AC	AJK

PLATE 1

SITE LOCATION

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

GOOGLE EARTH IMAGERY (4/15)

NEW SCHOOL SITE – GIRD ROAD
BONSALL UNIFIED SCHOOL DISTRICT
FALLBROOK, SAN DIEGO COUNTY, CALIFORNIA

PROJECT NO.	DATE	DR. BY	APP. BY
1601-1111	4/4/16	AC	AJK

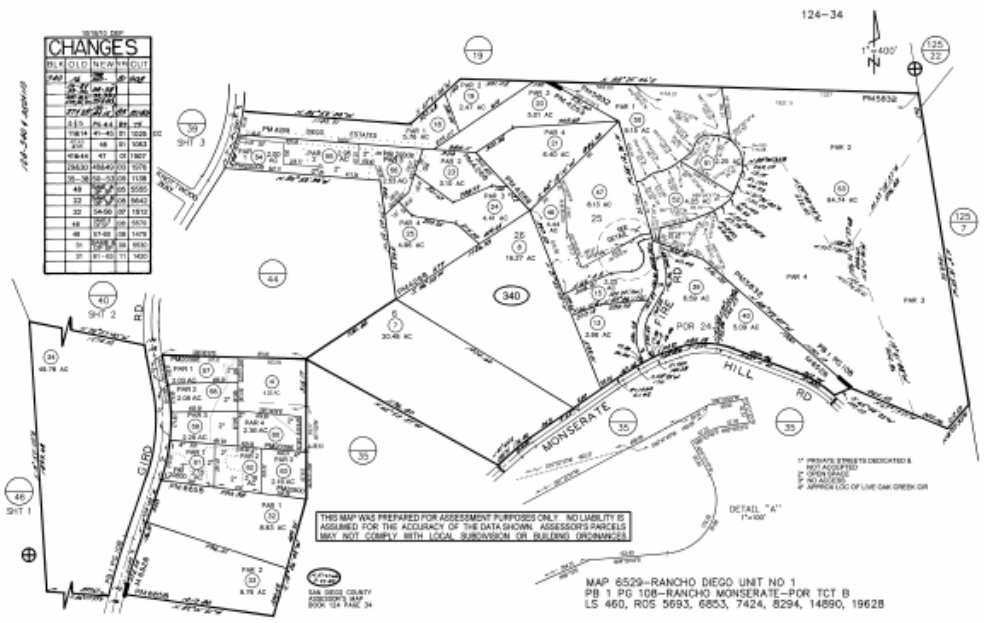
PLATE 2

SITE PLAN

APPENDIX A
ASSESSOR'S PARCEL MAP AND FLOOD INSURANCE RATE MAP

Assessor Parcel Maps

Total Preview Sheet(s):1 **124-34 SHEET 01** Back to Search Results



Questions or problems? Call us at (619)685-2455 (8am - 5pm PST),
or e-mail us at ARCC.FGG@sdcounty.ca.gov.

MAP SCALE 1" = 1000'

500 0 500 1,000 1,500 2,000 FEET

METE

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0480G

FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA

AND INCORPORATED AREAS

PANEL 480 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN DIEGO COUNTY	060284	0480	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

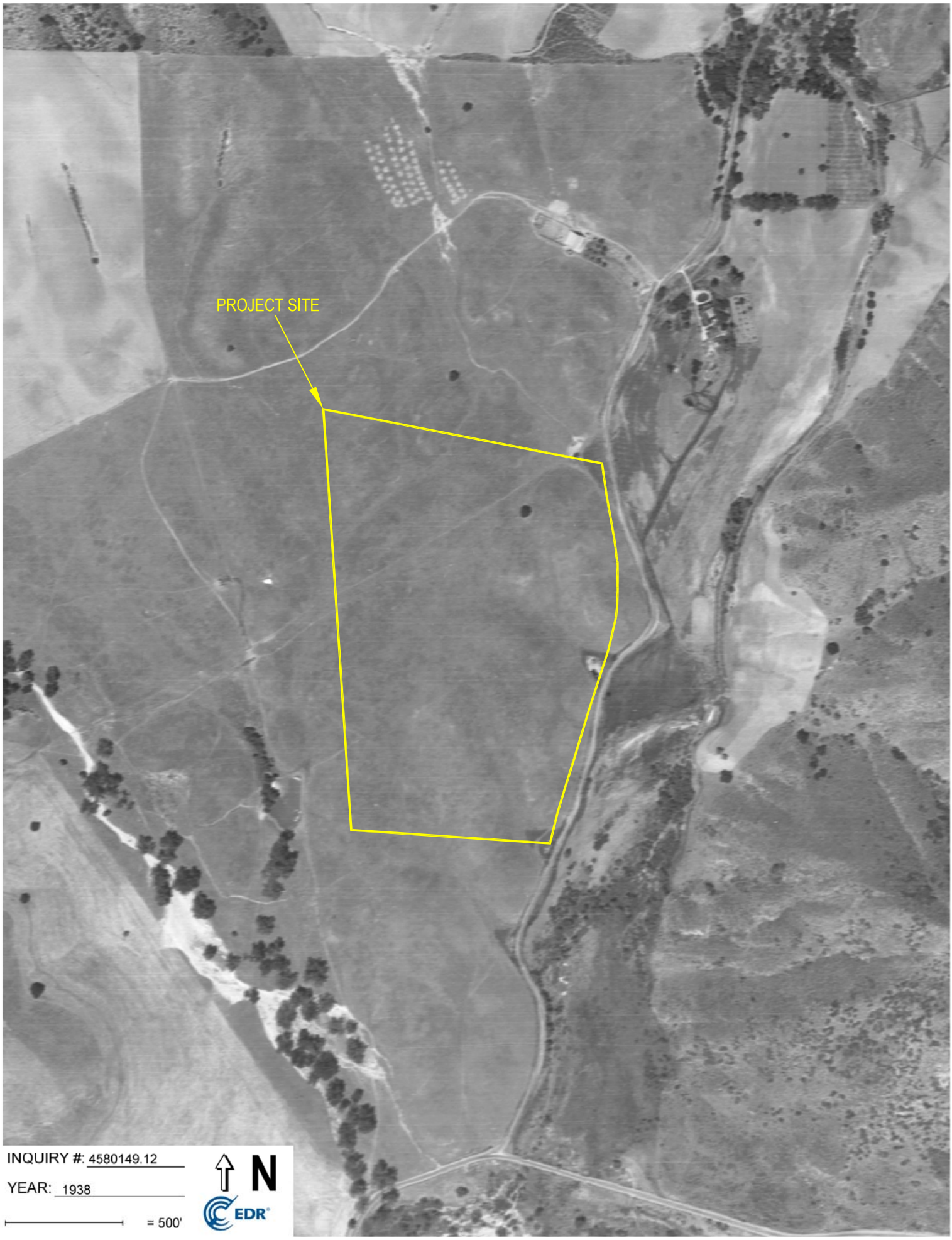
MAP NUMBER
06073C0480G

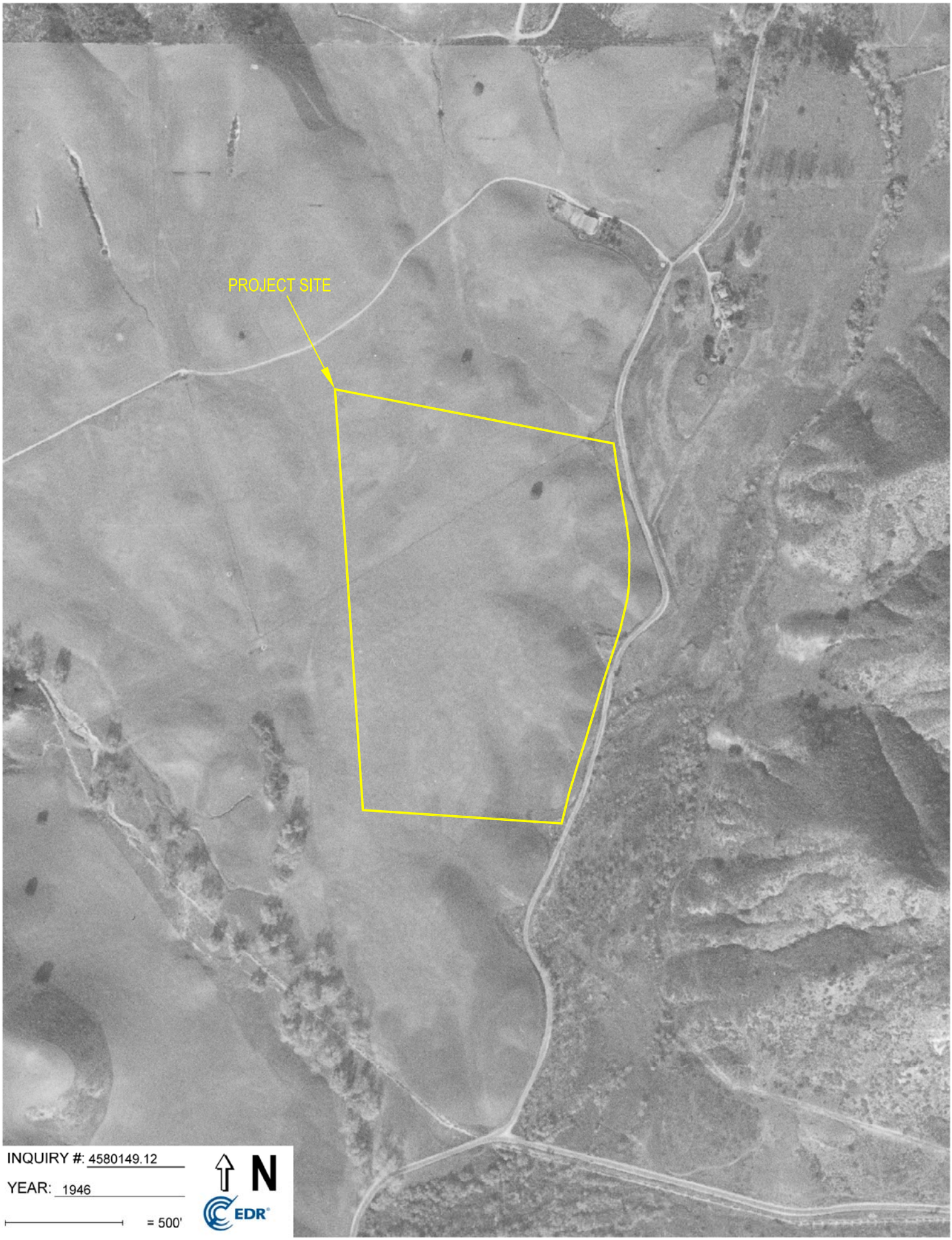
MAP REVISED
MAY 16, 2012

Federal Emergency Management Agency

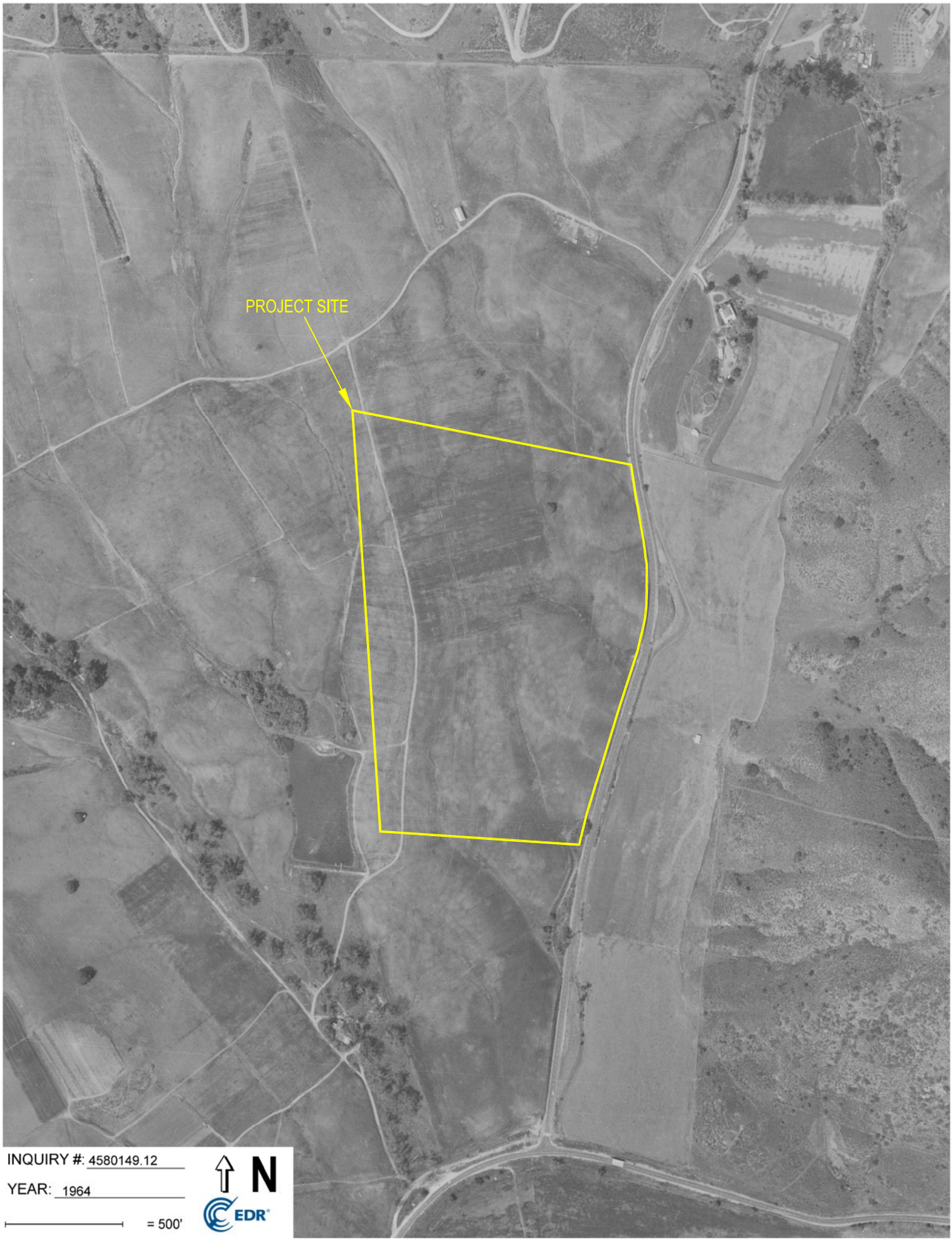
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

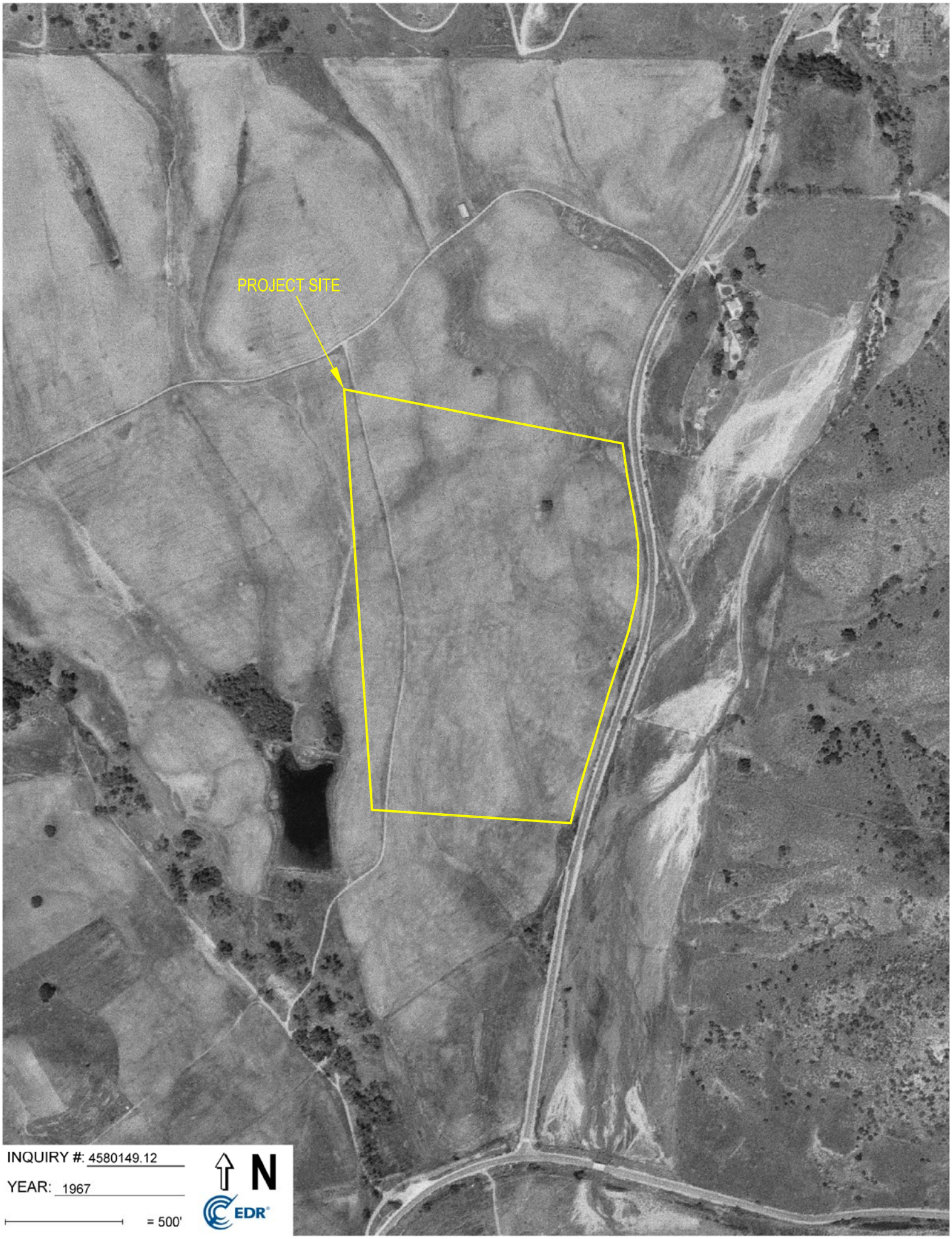
APPENDIX B
HISTORICAL AERIAL PHOTOGRAPHS AND TOPOGRAPHIC MAPS


PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 1938
= 500'
N
EDR


PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 1946
= 500'
N
EDR

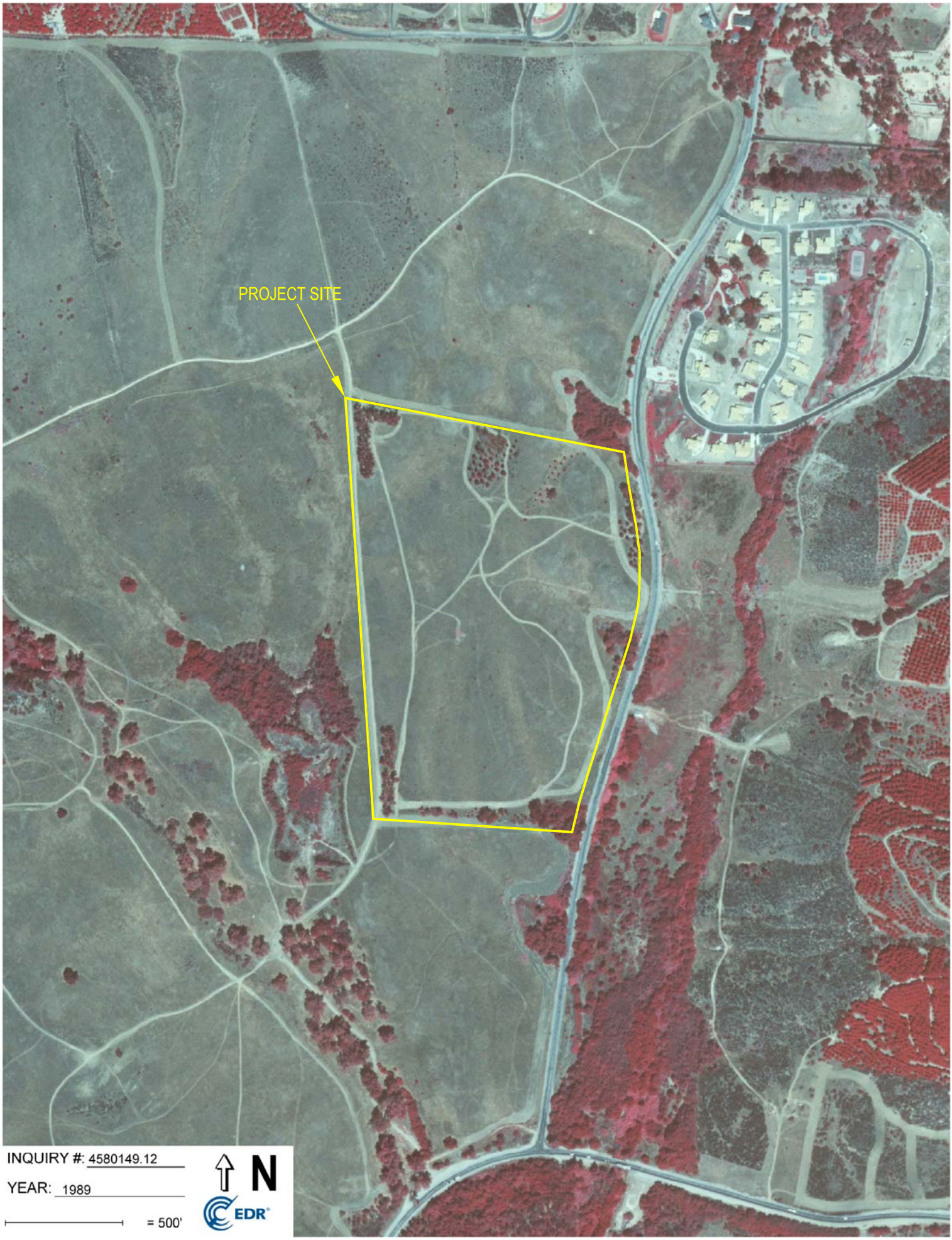
PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 1953
= 500'
N
EDR

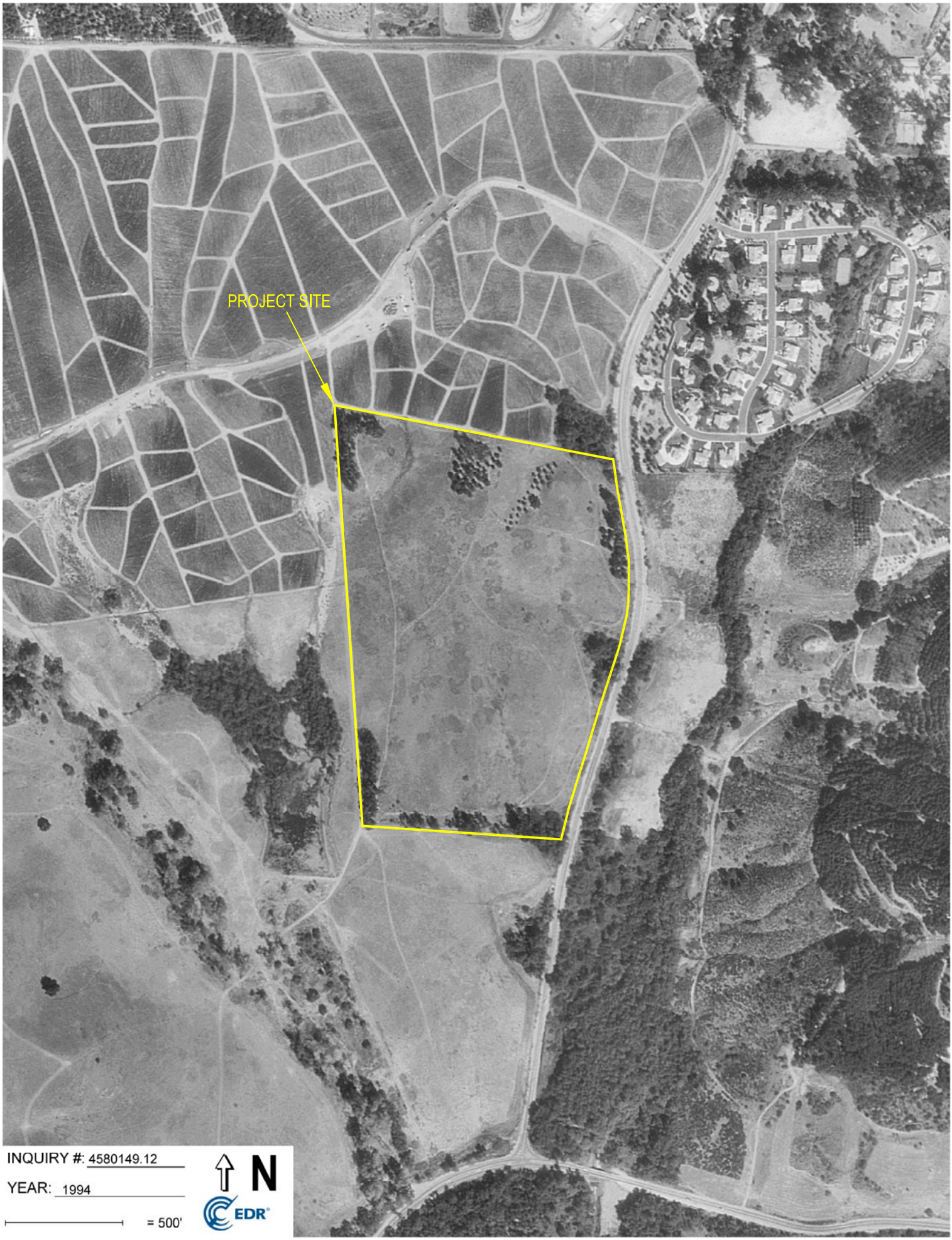

PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 1964
= 500'
N
EDR


PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 1967
= 500'
N
EDR

PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 1970
= 500'
N
EDR

PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 1985
= 500'
N
EDR


PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 1989
= 500'
N
EDR

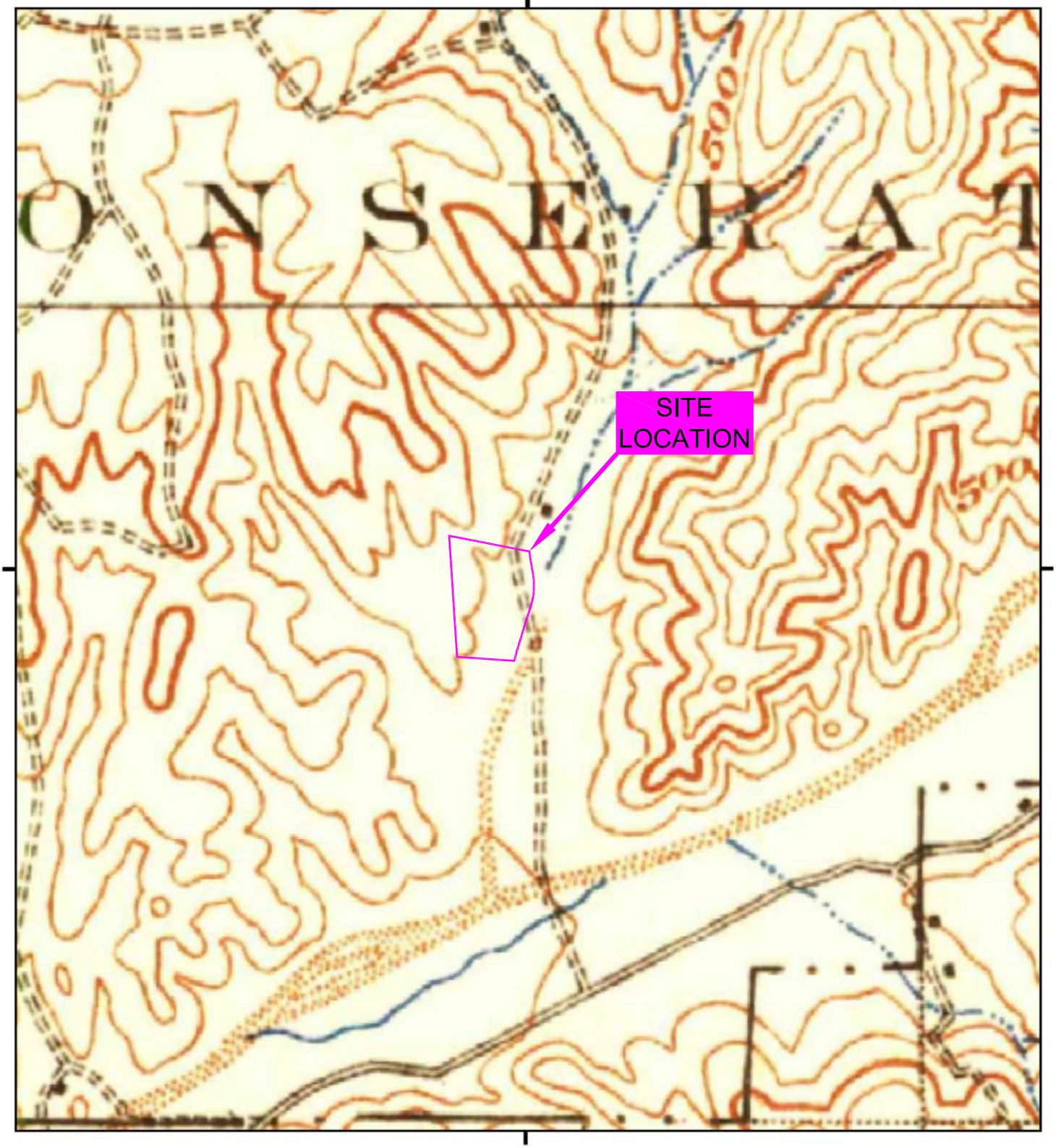

PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 1994
= 500'
N
EDR

PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 2005
= 500'
N
EDR

PROJECT SITE
INQUIRY #: 4580149.12
YEAR: 2012
= 500'
N
EDR

Historical Topo Map

1901



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

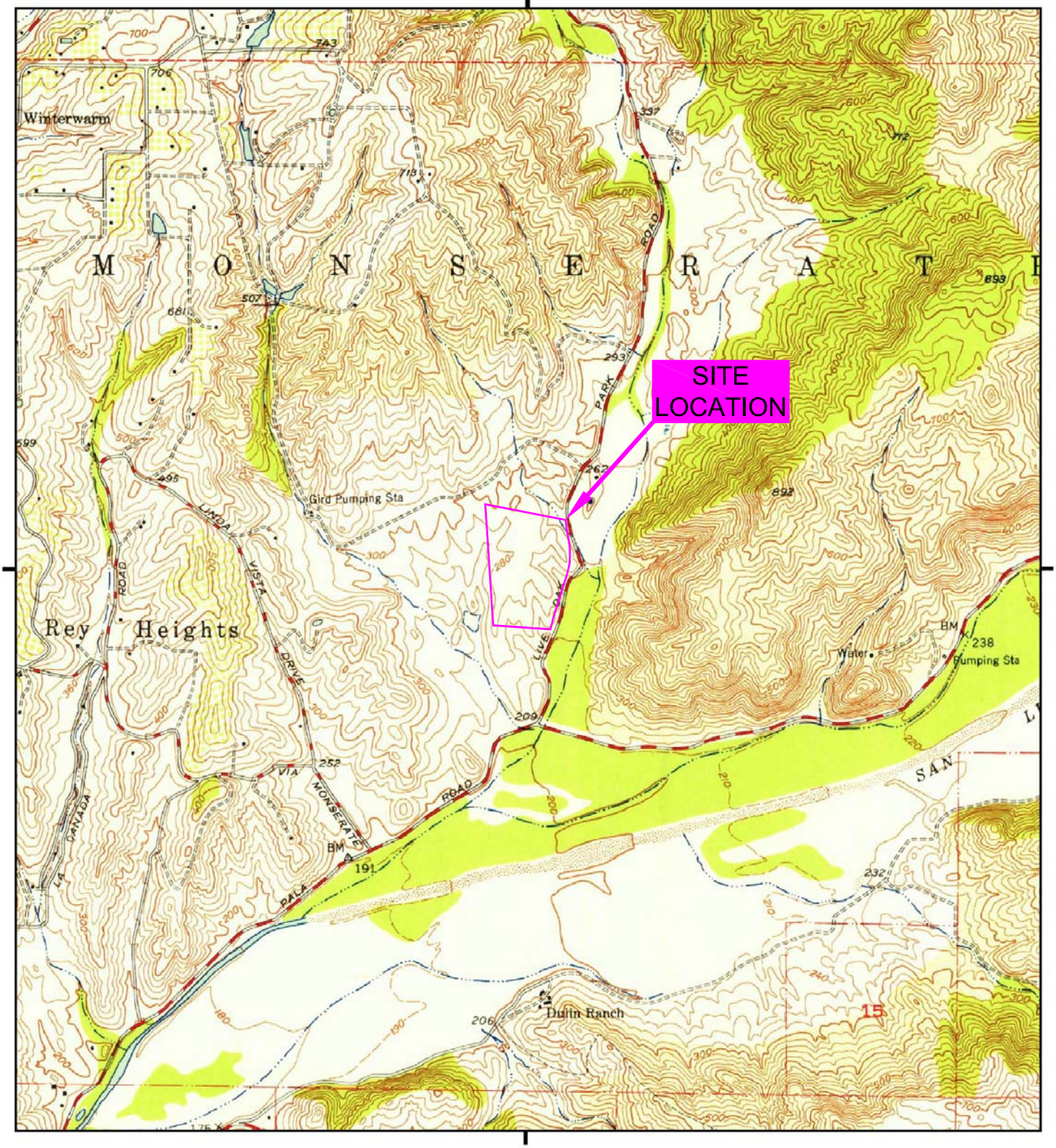
TP, San Luis Rey, 1901, 30-minute

SITE NAME: Gird Road Property
ADDRESS: Gird Road/Live Oak Creek Circle
Fallbrook, CA 92028
CLIENT: Padre Associates, Inc

N

Historical Topo Map

1948



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

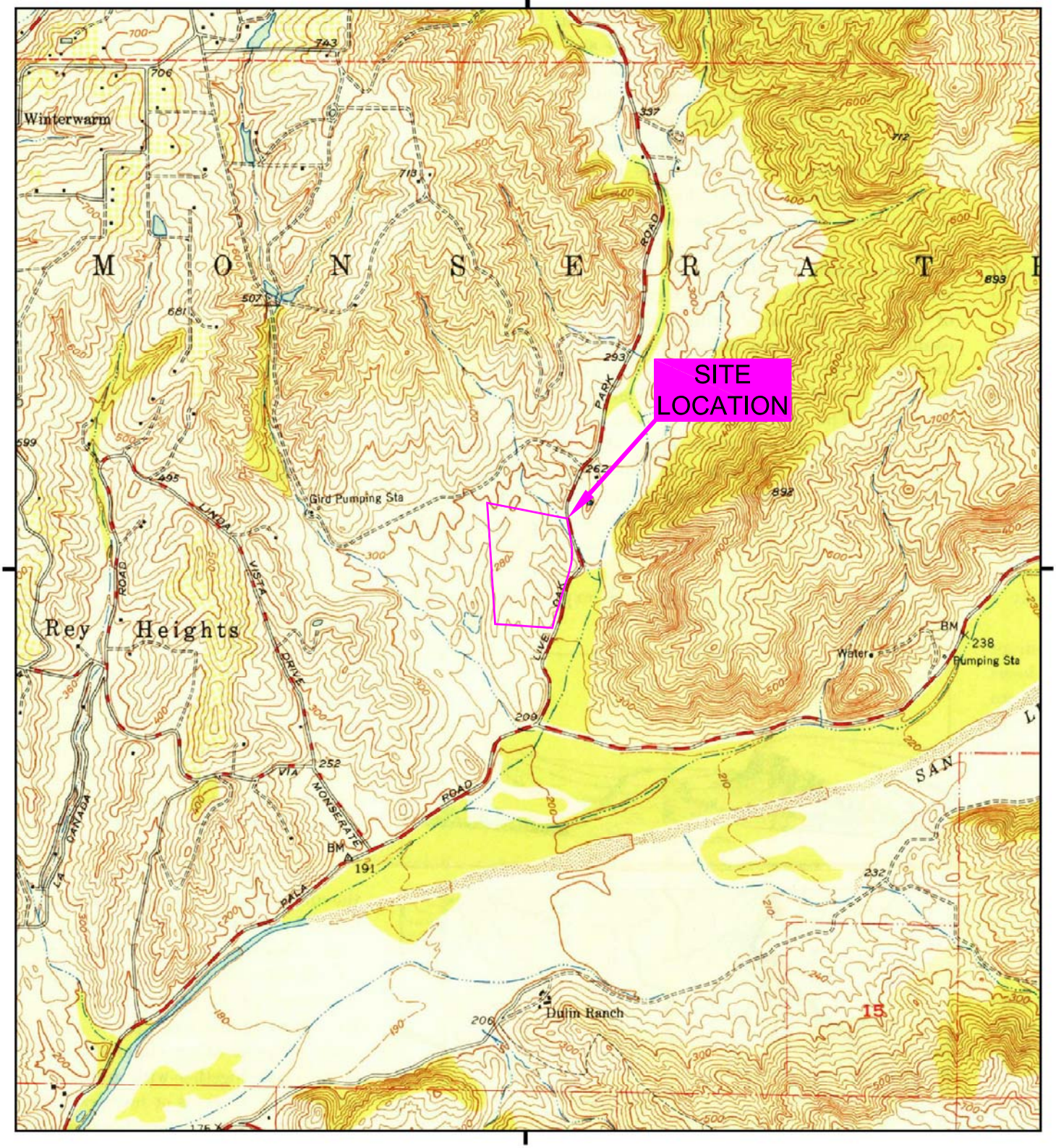
TP, Bonsall, 1948, 7.5-minute

SITE NAME: Gird Road Property
ADDRESS: Gird Road/Live Oak Creek Circle
Fallbrook, CA 92028
CLIENT: Padre Associates, Inc

N

Historical Topo Map

1949



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

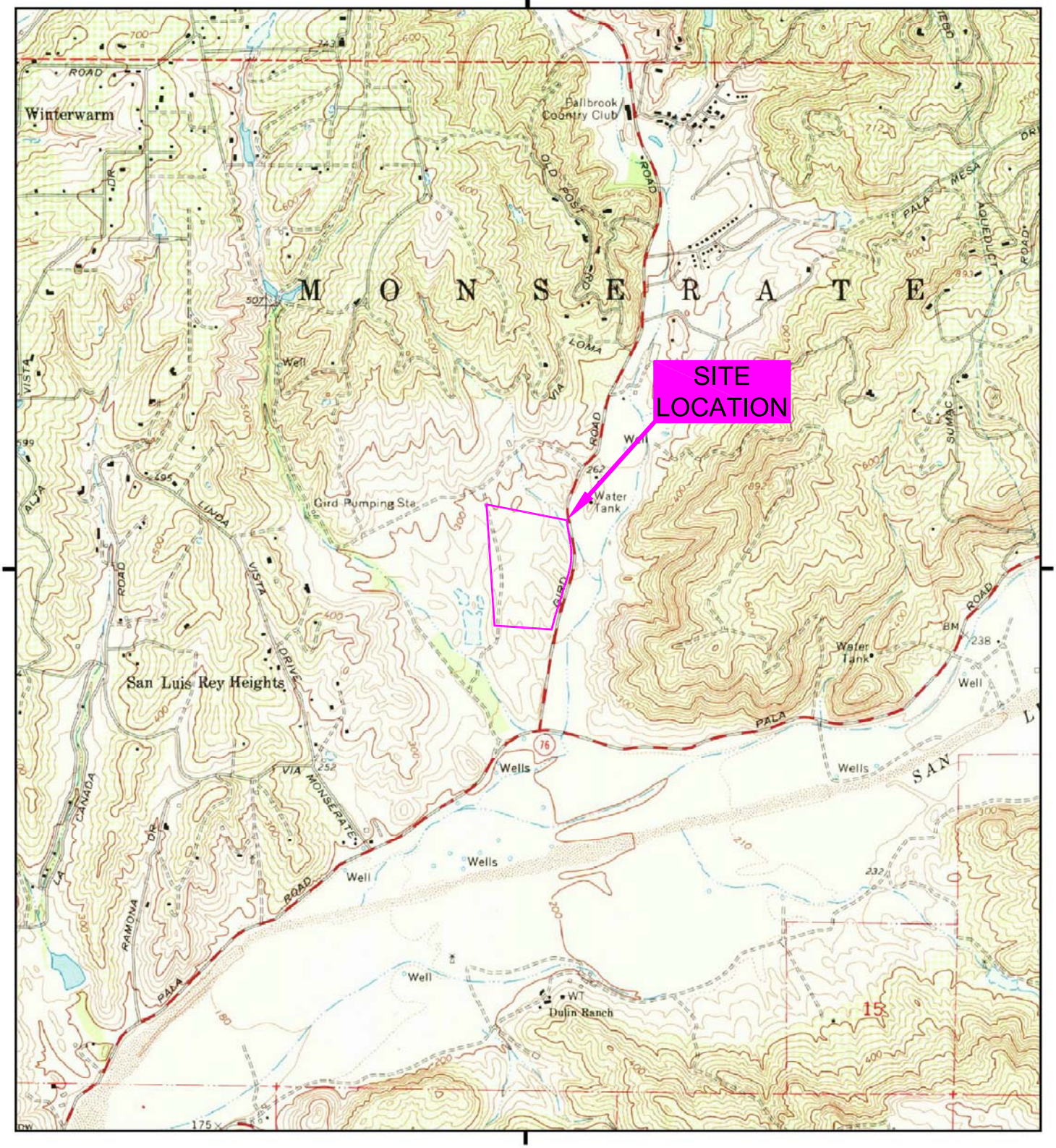
TP, Bonsall, 1949, 7.5-minute

SITE NAME: Gird Road Property
ADDRESS: Gird Road/Live Oak Creek Circle
Fallbrook, CA 92028
CLIENT: Padre Associates, Inc

N

Historical Topo Map

1968



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

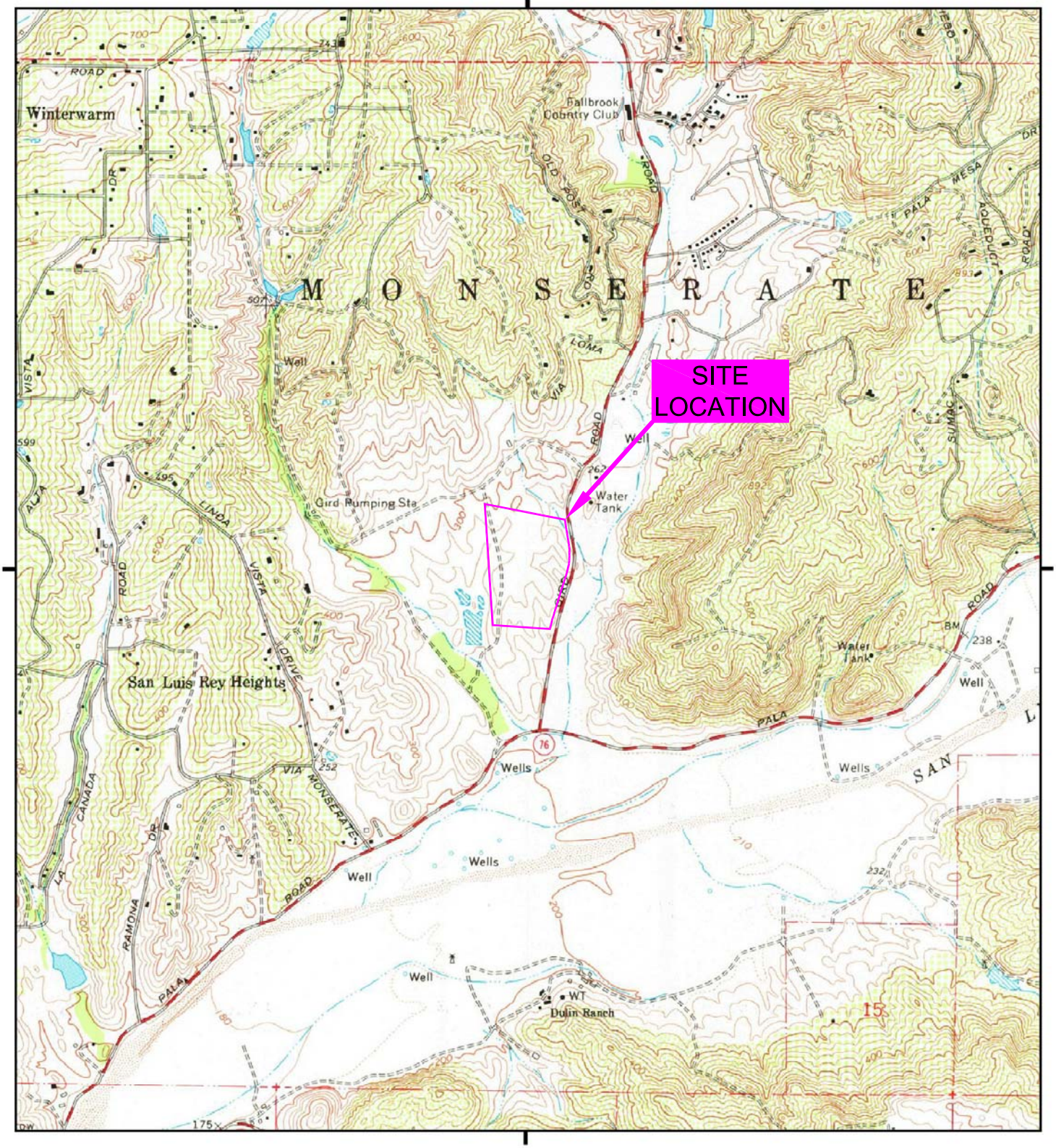
TP, Bonsall, 1968, 7.5-minute

SITE NAME: Gird Road Property
ADDRESS: Gird Road/Live Oak Creek Circle
Fallbrook, CA 92028
CLIENT: Padre Associates, Inc

N

Historical Topo Map

1975



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

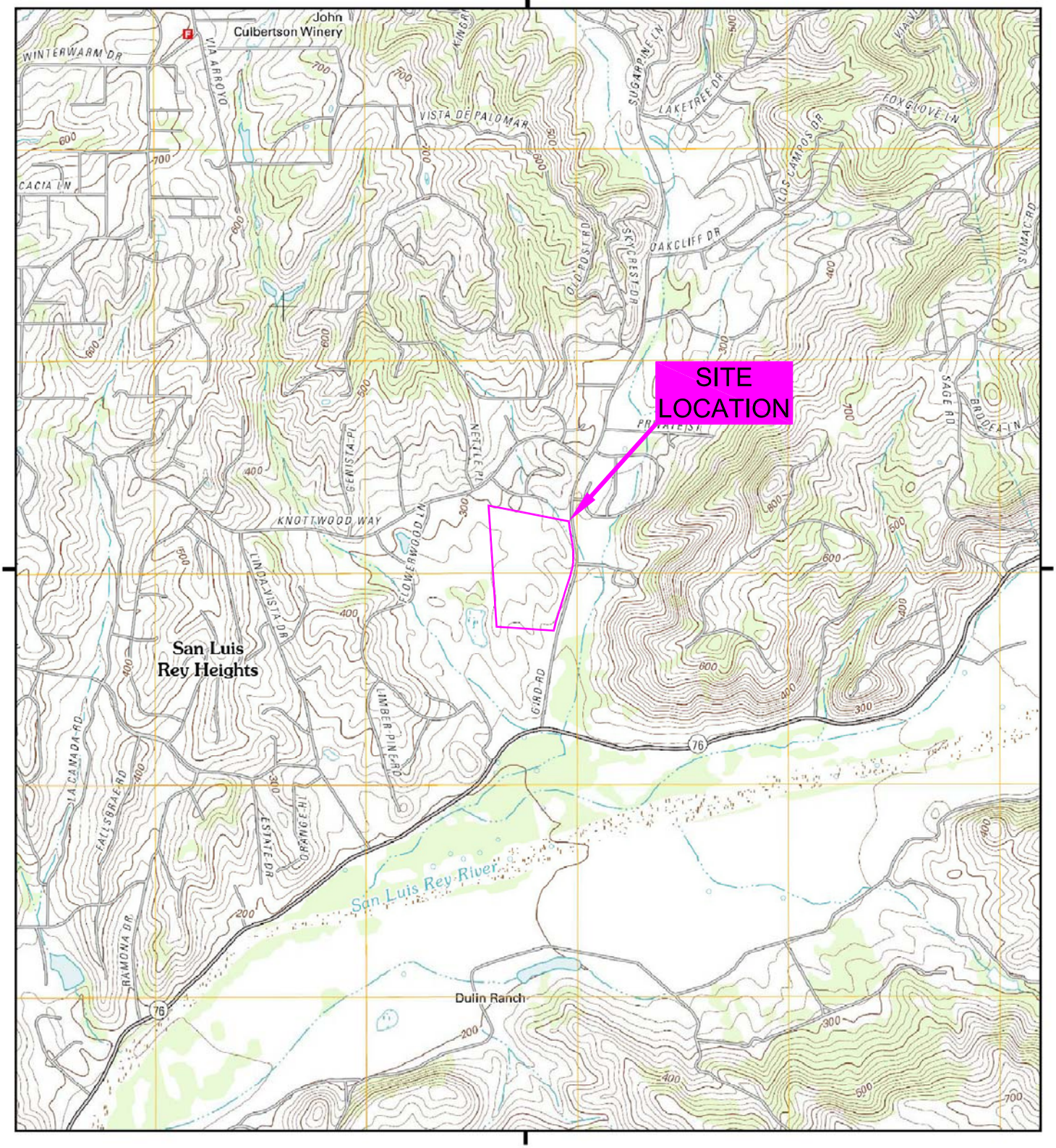
TP, Bonsall, 1975, 7.5-minute

SITE NAME: Gird Road Property
ADDRESS: Gird Road/Live Oak Creek Circle
Fallbrook, CA 92028
CLIENT: Padre Associates, Inc

N

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Bonsall, 2012, 7.5-minute

SITE NAME: Gird Road Property
ADDRESS: Gird Road/Live Oak Creek Circle
Fallbrook, CA 92028
CLIENT: Padre Associates, Inc

N

APPENDIX C
PROJECT SITE PHOTOGRAPHS

1. View of the northeastern portion of the Project Site from Gird Road at the locked gate.

2. View of the eastern boundary of the Project Site along Gird road.

3. view of the northern portion of the Project Site.

4. View of oak tree cluster located at the northern area of the Project Site.

5. View of the Northern boundary of the Project Site located adjacent to residential development.

6. View of the Central area of the Project Site.

7. View of the Central area of the Project Site.

8. View of the golf course / country club located along the western boundary of the Project Site.

9. View of the golf Course / country club located along the southern boundary of the Project Site.

10. View of the golf course / country club maintenance facility located adjacent tot eh southern boundary of the Project Site.

11. View of the golf course / country club maintenance facility located adjacent to the southern boundary of the Project Site.

12. View of agricultural land use located immediately east of the southeast portion of the Project Site across Gird Road.

13. Residential / agricultural land use located immediately east of the Project Site across Gird Road.

14. Oak tree and eucalyptus tree cluster located along the eastern boundary of the Project Site near the access gate.

15. Eucalyptus tree cluster located along the western boundary of the Project Site.

16. Abandoned utility line (appears to be water) located along the eastern boundary of the Project Site south of the access gate.

17. Pole-mounted electrical transformer located along the eastern boundary of the Project Site across Gird Road.

18. Residential development located along the northern boundary of the Project Site.

APPENDIX D
PROPERTY OWNER QUESTIONNAIRE

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

Property Owner Questionnaire
Gird Road Property (49.78 ac)

Padre Associates, Inc. (Padre) on behalf of **Bonsall Unified School District** is requesting the completion of the following questionnaire. The purpose of the questionnaire is to identify past and current use(s) of the Project Site. Please answer the following questions to the best of your knowledge. If you need more space, please use the back of the questionnaire or a separate sheet(s) of paper. If the answer to the question is unknown, write "unknown".

Project Site: Gird Road Property (49.78 ac), Bonsall, San Diego County, California 92028. The Project Site is identified by the County of San Diego as Assessor's Parcel Number: 124-340-34-00. A site map is attached.

1. Current property owner: Bonsall Unified School District

Contact: David Medcalf Email / Phone No.: 760-685-6730

2. Date of Ownership: Board Resolution 14-04-03(a) April 15, 2014.

3. Previous property owner/date of ownership: Fallbrook Union High School District.

4. Current Property Use(s): Vacant

5. Historic Property Use: Vacant.

6. Are there any water wells located onsite (irrigation/domestic/monitoring): No

7. Are there any septic tanks and/or leach fields' located onsite: Unknown.

8. Are there any pits, ponds, or lagoons in connection with waste treatment or waste disposal located onsite: No.

9. Are there any landfills and/or burn pits located onsite:
No

10. Where there any previous building structures present onsite that have been removed:
Unknown; no evidence of any previous structures

11. Has fill material been imported to the site? (if so, list quantity and location):
Unknown

12. Are there any underground or aboveground storage tanks located onsite:
Unknown

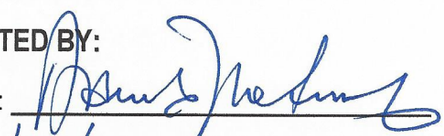
13. Are there any environmental permits associate with this property:
Unknown

14. Is there a Hazardous Materials Business Plan (HMBP) for the current and/or past tenant(s):
No current HMBP; unknown for past owner

15. Are chemicals stored or used onsite (List chemicals and year(s) used):
No

16. Have any chemical spills and/or incidents occurred onsite:
None since present Ownership; Unknown re: previous owner

COMPLETED BY:

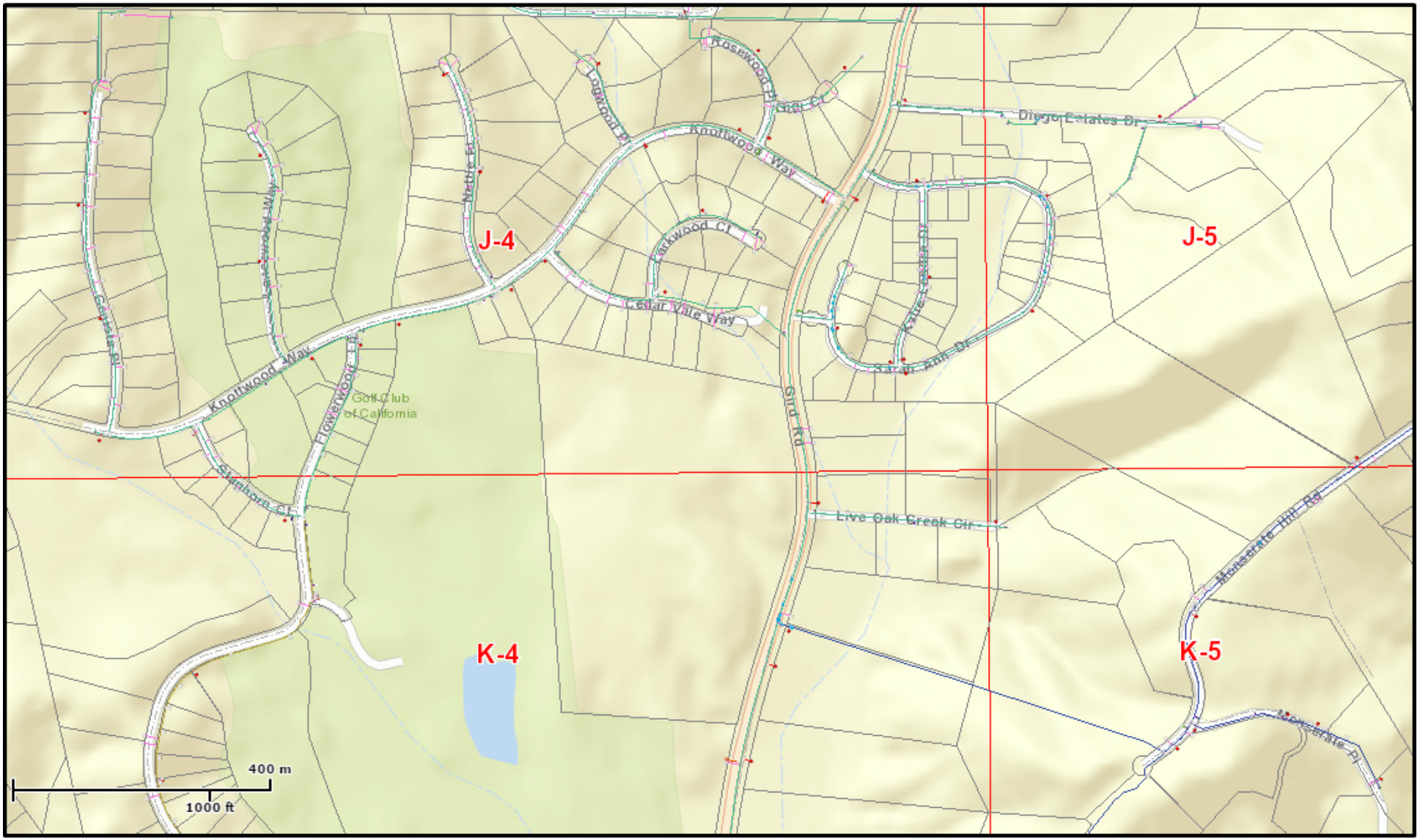
Signature:  Print Name: David Medcalf

Date: 5/26/2016 Representing: Bonsall Unified School District

Please return the questionnaire to: Padre Associates, Inc.
555 University Ave, Suite 110
Sacramento, California 95825
Attn: Alan Klein aklein@padreinc.com

APPENDIX E
UTILITY RESPONSE INFORMATION

Water Pipelines



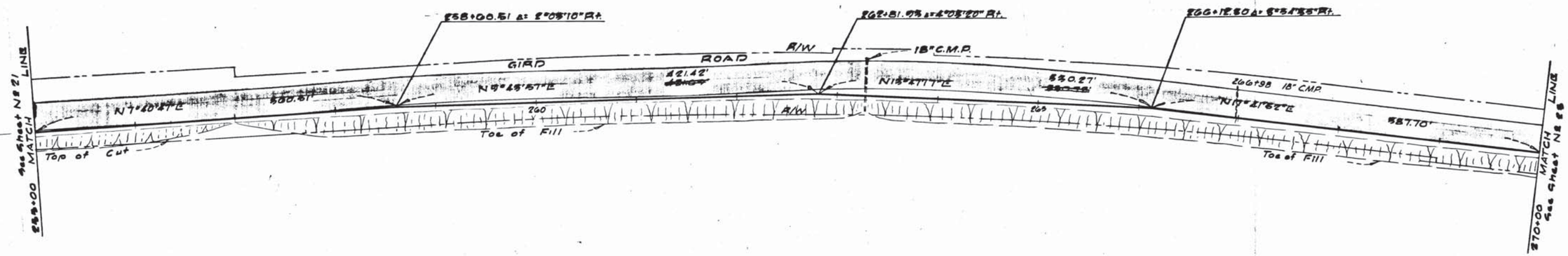
1" = 752 ft	Sub Title	04/07/2016	N W E S	RAINBOW MUNICIPAL WATER DISTRICT

This map represents a visual display of related geographic information. Data provided hereon is not a guarantee of actual field conditions. To be sure of complete accuracy, please contact Rainbow Water District staff for the most up-to-date information.

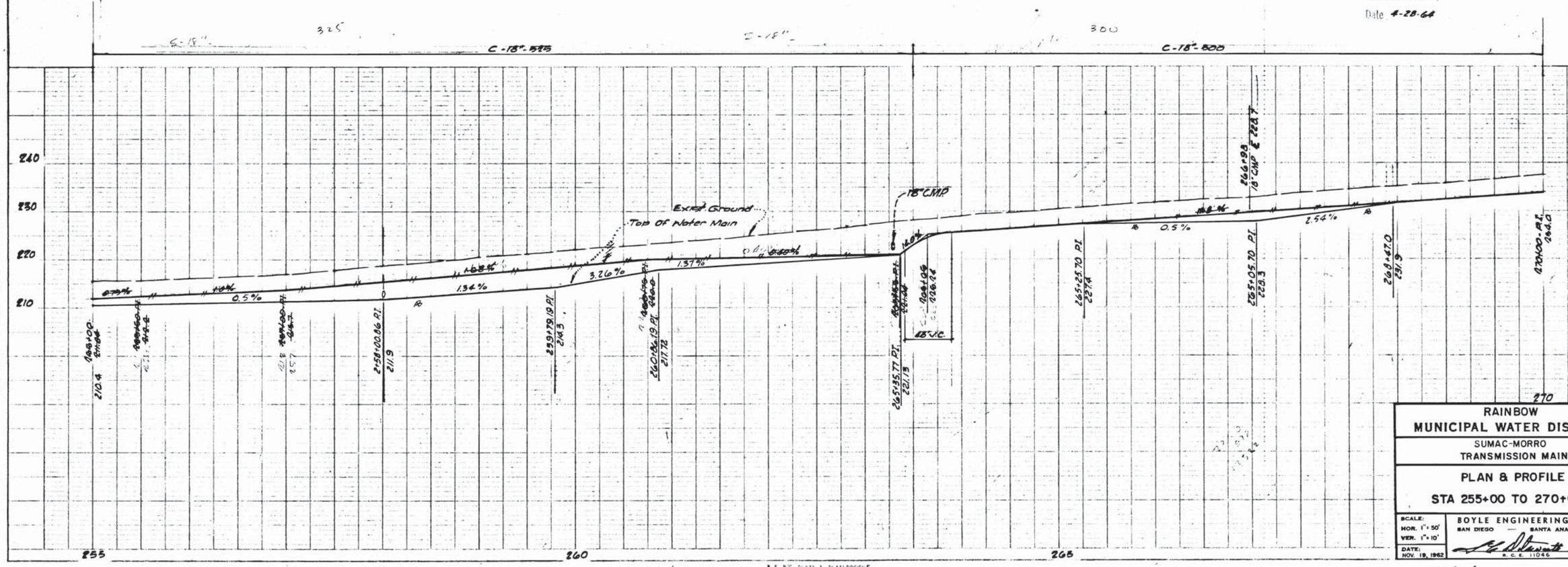
PLAN — SURVEYED — PLOTTED — NOTE BOOK — NO. — DATE — (ENGR. OR DRFTSMN. CHECKED) — (R/W AGENT CHECKED) — (DIV. OF WAY CHECKED)

PROFILE — SURVEYED — PLOTTED — NOTE BOOK — NO. — DATE — (ENGR. OR DRFTSMN. CHECKED) — (R/W AGENT CHECKED) — (DIV. OF WAY CHECKED)

#483 P



REVISED
TO "AS BUILT"
CONDITIONS
Date 4-28-64



RAINBOW
MUNICIPAL WATER DISTRICT
SUMAC-MORRO
TRANSMISSION MAIN
PLAN & PROFILE
STA 255+00 TO 270+00

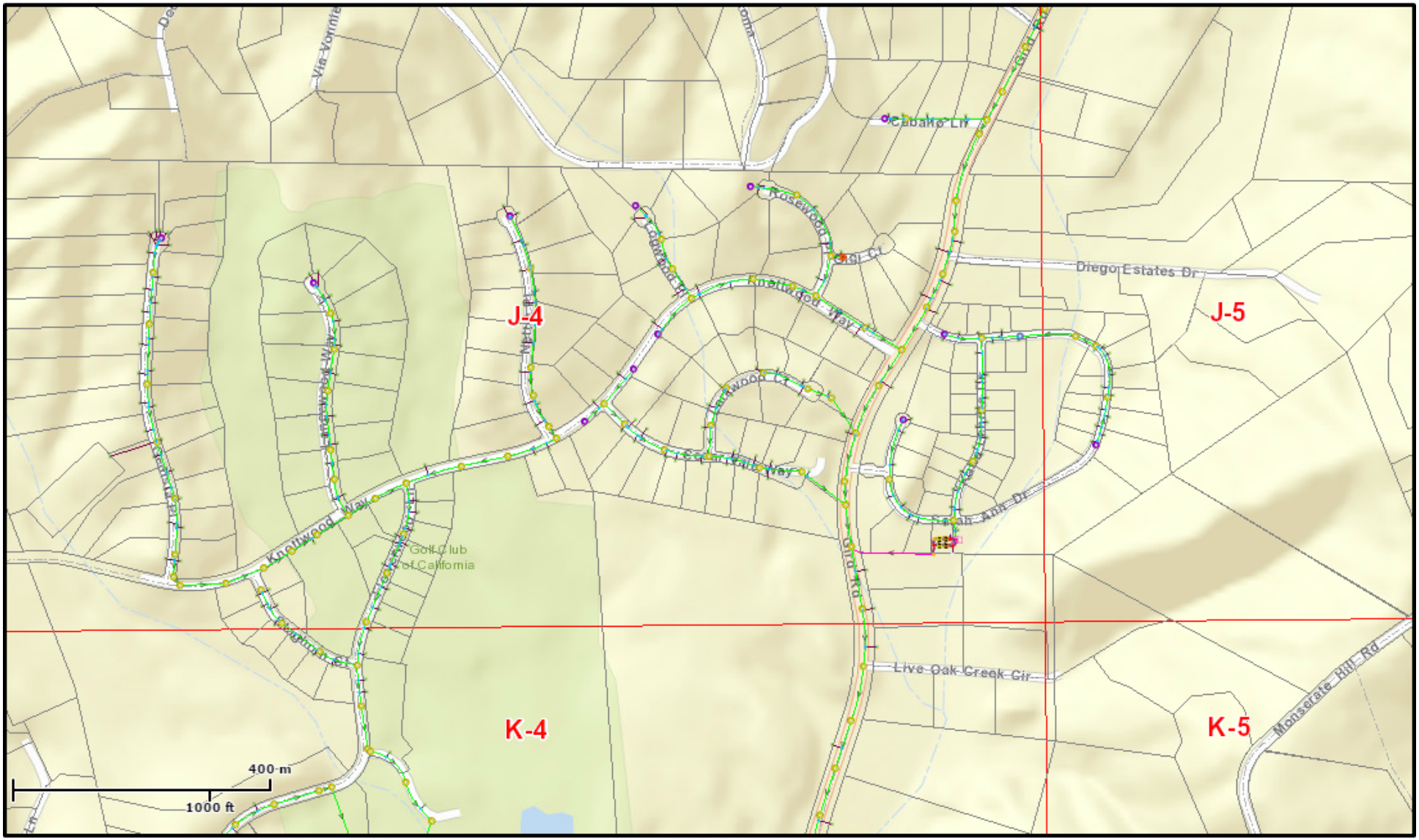
SCALE: HOR. 1"=50' VER. 1"=10'
DATE: NOV. 19, 1962
BOYLE ENGINEERING SAN DIEGO — SANTA ANA
R. C. E. 11046
SHEET NO. 22 OF 46 SHTS.
BEWD 5483 E

K & E Co. No 348-105 PLATE 1. PLAN-PROFILE PROFILE & EMA CO.

14A-1

157

SEWER PIPELINE



1" = 752 ft	Sub Title	04/07/2016	N W E S	RAINBOW MUNICIPAL WATER DISTRICT

This map represents a visual display of related geographic information. Data provided hereon is not a guarantee of actual field conditions. To be sure of complete accuracy, please contact Rainbow Water District staff for the most up-to-date information.

#712 W

MH 65 STA 234+60.03

MH 66 STA 237+17.37

MH 67 STA 240+01.27

EMBED MH 68 STA 242+85.17

MH 69 STA 245+66.23

MH 70 STA 248+58.12

EX. SURFACE @ SEWER

EX. 16" CMP

EX. 6" W. METER

EX. 18" CMP

EX. GRADE @ SEWER

℄ Proposed 12"ϕ Sewer

8" or 18" O.D. STD. STEEL PIPE CASING CENTERED OVER ℄ CULVERT, WITH INTERIOR WALLS TO APPLY(TYP.)

6" or 18" O.D. STD. STEEL PIPE CASING CENTERED UNDER EX. WATER MAIN, WITH INTERIOR WALLS OMITTED

257.34 L.F. OF 12"ϕ @ 1.75 %

283.90 L.F. OF 12"ϕ @ 1.41 %

283.90 L.F. OF 12"ϕ @ 0.88 %

281.06 L.F. OF 12"ϕ @ 1.20 %

291.89 L.F. OF 12"ϕ @ 1.47 %

291.89 L.F. OF 12"ϕ @ 1.98 %

234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250

233.32 238.00 242.00 245.92 251.60 255.32

270 260 250 240

SCALE 1" = 50' HORZ. 1" = 5' VERT.

SEE SHEET 15

SEE SHEET 17

24,500 N

25,000 N

25,500 N

2,500 E

JELLED

℄ Proposed 12"ϕ Sewer

N17°-53'-36"E 257.34'

N17°-28'-30"E

257.34'

Sta 1+14

Sta 1+15

Δ=18°-47'-18" R=1,100' L=289.90'

Δ=18°-23'-15" R=1,100' L=283.90'

Δ=18°-18'-18" R=1,100' L=281.06'

L=291.89'

DN-1

GIRD

ROAD

27.0 44.9 43.6 41.0 48.6 51.0 51.0

247+04

BENCH MARK: PER ROAD SURVEY NO. 820 - TOP 1 1/2" (NO REF.), MAP STA. 29+60, B.C. 30.03' EAST OF ℄

ELEVATION: 245.660'

NO.	DATE	INITIAL	DESCRIPTION REVISIONS	APP'VD.

W.O. 76-306	DATE
DESIGNED P.W.	10/77
DRAWN D.R.M. P.W.	10/77
CHECKED	

APPROVED BY: A. Albert Webb R.C.E. NO. 19412 DATE 8/1/78

ALBERT A. WEBB ASSOCIATES
CIVIL AND HYDRAULIC ENGINEERS
3788 MC CRAY STREET
RIVERSIDE CALIFORNIA

AS BUILT 3/1/81 CEB

RAINBOW MUNICIPAL WATER DISTRICT
SAN DIEGO COUNTY, CALIFORNIA

SANITARY SEWER INTERCEPTOR
PLANT 'A'

SHEET 16 OF SHEETS
DWG NO. 76-306

#650

APPENDIX F
EDR RADIUS MAP REPORT

Gird Road Property
Gird Road/Live Oak Creek Circle
Fallbrook, CA 92028

Inquiry Number: 4580149.2s
April 01, 2016

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	17
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-12
Physical Setting Source Map Findings	A-14
Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

GIRD ROAD/LIVE OAK CREEK CIRCLE
FALLBROOK, CA 92028

COORDINATES

Latitude (North):	33.3221410 - 33° 19' 19.70''
Longitude (West):	117.1958510 - 117° 11' 45.06''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	481770.8
UTM Y (Meters):	3686825.2
Elevation:	287 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5641328 BONSALL, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20120519
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
GIRD ROAD/LIVE OAK CREEK CIRCLE
FALLBROOK, CA 92028

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	DEVELOPMENT COORDINA	3640 GIRD RD	San Diego Co. HMMD, SWEEPS UST	Lower	831, 0.157, NNE
2	GOLF CLUB OF CALIFOR	3742 FLOWERWOOD LN	AST, San Diego Co. HMMD	Lower	1255, 0.238, WSW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List

US INST CONTROL ..... Sites with Institutional Controls

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ..... State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR ..... EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ..... Solid Waste Information System

State and tribal leaking storage tank lists

SAN DIEGO CO. SAM ..... Environmental Case Listing
LUST ..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
SLIC ..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ..... Underground Storage Tank Listing
UST ..... Active UST Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP ..... Voluntary Cleanup Program Properties
INDIAN VCP ..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ..... Waste Management Unit Database
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
ODI ..... Open Dump Inventory
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations

EXECUTIVE SUMMARY

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL	Delisted National Clandestine Laboratory Register
HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
San Diego Co. HMMD	Hazardous Materials Management Division Database
Toxic Pits	Toxic Pits Cleanup Act Sites
US CDL	National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

HIST UST	Hazardous Substance Storage Container Database
CA FID UST	Facility Inventory Database

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated
FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database

HIST FTTS FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS Incident and Accident Data
CONSENT Superfund (CERCLA) Consent Decrees
INDIAN RESERV Indian Reservations
FUSRAP Formerly Utilized Sites Remedial Action Program
UMTRA Uranium Mill Tailings Sites
LEAD SMELTERS Lead Smelter Sites
US AIRS Aerometric Information Retrieval System Facility Subsystem
US MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
CA BOND EXP. PLAN Bond Expenditure Plan
Cortese "Cortese" Hazardous Waste & Substances Sites List
CUPA Listings CUPA Resources List
DRYCLEANERS Cleaner Facilities
EMI Emissions Inventory Data
ENF Enforcement Action Listing
Financial Assurance Financial Assurance Information Listing
HAZNET Facility and Manifest Data
HIST CORTESE Hazardous Waste & Substance Site List
HWP EnviroStor Permitted Facilities Listing
HWT Registered Hazardous Waste Transporter Database
MINES Mines Site Location Listing
MWMP Medical Waste Management Program Listing
NPDES NPDES Permits Listing
PEST LIC Pesticide Regulation Licenses Listing
PROC Certified Processors Database
Notify 65 Proposition 65 Records
UIC UIC Listing
WASTEWATER PITS Oil Wastewater Pits Listing
WDS Waste Discharge System
WIP Well Investigation Program Case List
ECHO Enforcement & Compliance History Information
FUELS PROGRAM EPA Fuels Program Registered Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR Hist Auto EDR Exclusive Historic Gas Stations
EDR Hist Cleaner EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF Recovered Government Archive Solid Waste Facilities List
RGA LUST Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State and tribal registered storage tank lists

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, and dated 08/01/2009 has revealed that there is 1 AST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
GOLF CLUB OF CALIFOR	***3742 FLOWERWOOD LN***	***WSW 1/8 - 1/4 (0.238 mi.)***	***2***	***9***

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

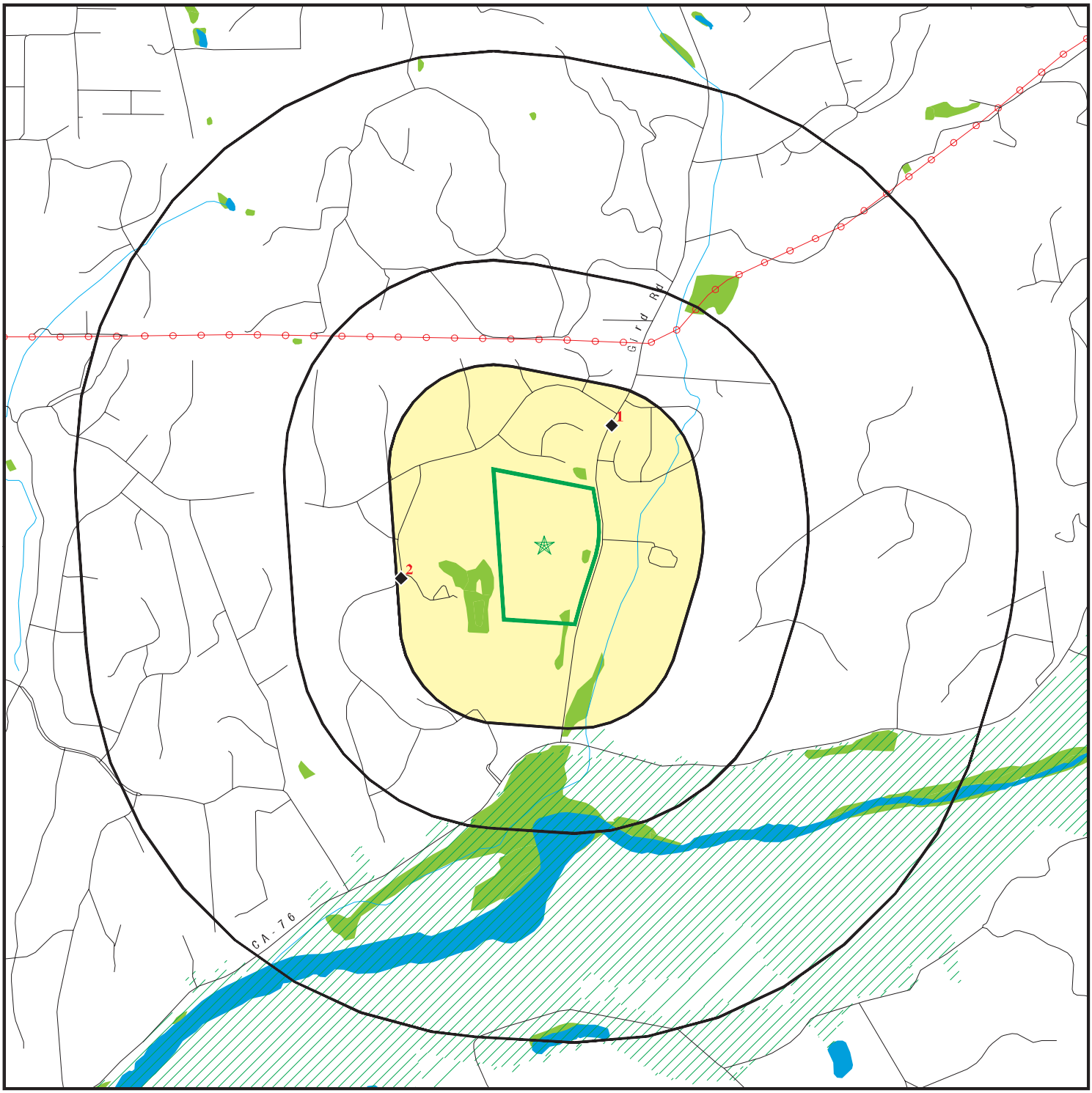
Lower Elevation	Address	Direction / Distance	Map ID	Page
DEVELOPMENT COORDINA	***3640 GIRD RD***	***NNE 1/8 - 1/4 (0.157 mi.)***	***1***	***8***
Comp Number: 26547				

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 4 records.

Site Name	Database(s)
CHEVRON FALLBROOK	LUST, EMI
CHEVRON	LUST
FALLBROOK AUTO PARTS	LUST
RANCHO VIEJO	SAN DIEGO CO. SAM, SLIC, San Diego Co. HMMD

OVERVIEW MAP - 4580149.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Areas of Concern

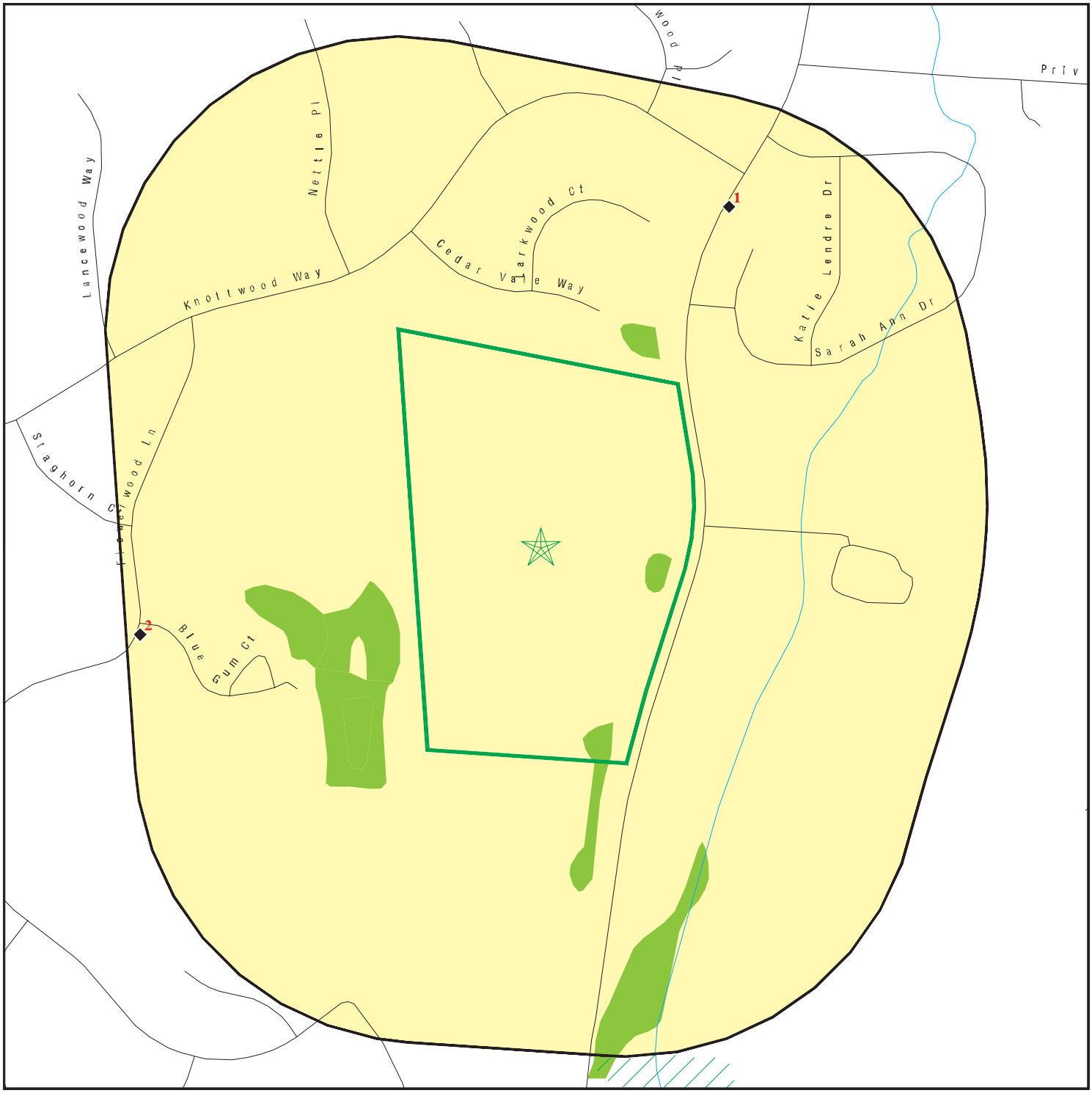
N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Gird Road Property	CLIENT:	Padre Associates, Inc
ADDRESS:	Gird Road/Live Oak Creek Circle Fallbrook CA 92028	CONTACT:	Matt Miller
LAT/LONG:	33.322141 / 117.195851	INQUIRY #:	4580149.2s
		DATE:	April 01, 2016 12:47 pm

Copyright © 2016 EDR, Inc. © 2015 TomTom Rel. 2015.

DETAIL MAP - 4580149.2S



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
Sensitive Receptors
National Priority List Sites
Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA
100-year flood zone
500-year flood zone
National Wetland Inventory
State Wetlands

Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Gird Road Property	CLIENT: Padre Associates, Inc
ADDRESS: Gird Road/Live Oak Creek Circle Fallbrook CA 92028	CONTACT: Matt Miller
LAT/LONG: 33.322141 / 117.195851	INQUIRY #: 4580149.2s DATE: April 01, 2016 12:49 pm

Copyright © 2016 EDR, Inc. © 2015 TomTom Rel. 2015.

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
SAN DIEGO CO. SAM	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	1	NR	NR	NR	1
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
San Diego Co. HMMD	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	1	NR	NR	NR	1
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	0	2	0	0	0	2

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
NNE
1/8-1/4
0.157 mi.
831 ft.

DEVELOPMENT COORDINATORS
3640 GIRD RD
FALLBROOK, CA 92028

San Diego Co. HMMD **S104751093**
SWEEPS UST **N/A**

Relative:
Lower

Actual:
262 ft.

SAN DIEGO CO. HMMD:

Facility Id:	126547
Business Type:	6HK03
EPA Id Number:	Not reported
APN:	DEH-126547
Last HMMD Inspection:	Not reported
Permit Status:	INAC
Permit Expiration:	09/30/2002
Facility Owner:	DEVELOPMENT COORDINATORS
Facility Address:	17315 STUDEBAKER RD
Facility City:	CERRITOS
Facility State:	CA
Facility Zip:	92028-9314
UST Owner:	Not reported
Handle Regulated Hazmat:	Not reported
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Not reported
Treat Haz Waste:	Not reported
Generate Medical Waste:	Not reported

UST:

UST Name:	UNDERGROUND TANK 126547 T001
Last Update:	2012-11-02 14:17:38
Permit Number:	126547
Tank Type:	SINGLE WALL
Additional Id:	1
Capacity Gallons:	550
UST Contents:	LEADED
Other Content Info:	LEADED
Reg Status:	REMOVED
Remove Close Date:	1988-09-26 00:00:00
Year Installed:	Not reported
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	90
UST Monitor Method:	NO MONITORING ALTERNATIVE SELECTED. VERIFY AND ENTER MONITORING ALTERNATIVE DURING INSPECTION.

UST Name:	UNDERGROUND TANK 126547 T002
Last Update:	2012-11-02 14:17:38
Permit Number:	126547
Tank Type:	SINGLE WALL
Additional Id:	2
Capacity Gallons:	280
UST Contents:	LEADED
Other Content Info:	LEADED
Reg Status:	REMOVED
Remove Close Date:	1988-09-26 00:00:00
Year Installed:	Not reported
Pipe Type:	Not reported
Delivery System:	Not reported
Monitor Code:	90
UST Monitor Method:	NO MONITORING ALTERNATIVE SELECTED. VERIFY AND ENTER MONITORING

DEVELOPMENT COORDINATORS (Continued) **S104751093**

ALTERNATIVE DURING INSPECTION.

SWEEPS UST:

Status:	Not reported
Comp Number:	26547
Number:	Not reported
Board Of Equalization:	44-023701
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	37-000-026547-000001
Tank Status:	Not reported
Capacity:	550
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	LEADED
Number Of Tanks:	2

Status:	Not reported
Comp Number:	26547
Number:	Not reported
Board Of Equalization:	44-023701
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	37-000-026547-000002
Tank Status:	Not reported
Capacity:	280
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	LEADED
Number Of Tanks:	Not reported

2
WSW
1/8-1/4
0.238 mi.
1255 ft.

GOLF CLUB OF CALIFORNIA **AST** **S106070492**
3742 FLOWERWOOD LN **San Diego Co. HMMD** **N/A**
FALLBROOK, CA 92028

Relative:
Lower

Actual:
276 ft.

AST:

Certified Unified Program Agencies:	San Diego
Owner:	MAGNUS INVESTMENT GROUP INC.
Total Gallons:	2235

SAN DIEGO CO. HMMD:

Facility Id:	200356
Business Type:	6HK40
EPA Id Number:	Not reported
APN:	124-461-24-00
Last HMMD Inspection:	09/07/2006
Permit Status:	CHNG
Permit Expiration:	11/30/2007

GOLF CLUB OF CALIFORNIA (Continued) **S106070492**

Facility Owner:	WILLIAM LYON HOMES, INC
Facility Address:	3742 FLOWERWOOD LANE
Facility City:	FALLBROOK
Facility State:	CA
Facility Zip:	92028
UST Owner:	Not reported
Handle Regulated Hazmat:	Not reported
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Not reported
Treat Haz Waste:	Not reported
Generate Medical Waste:	Not reported

Facility Id:	209063
Business Type:	6HK40
EPA Id Number:	Not reported
APN:	124-461-24-00
Last HMMD Inspection:	02/21/2008
Permit Status:	INAC
Permit Expiration:	06/30/2009
Facility Owner:	MAGNUS INVESTMENT GROUP INC.
Facility Address:	3742 FLOWERWOOD LN
Facility City:	FALLBROOK
Facility State:	CA
Facility Zip:	92028
UST Owner:	Not reported
Handle Regulated Hazmat:	Y
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Y
Treat Haz Waste:	Not reported
Generate Medical Waste:	Not reported

Violations Inactive Permits:

Facility Id:	209063
Update Date:	11/02/2012
Inspection Date:	02/21/2008
Violation Code:	6HV0135
Violation:	MANIFESTS/RECEIPTS FOR 3 YEARS NOT ONSIT
Violation Citation:	Hazardous waste manifests/receipts for 3 years are not maintained onsite to document proper disposal of hazardous waste. CCR 66262.40(a) & 25160.2(b)(3)
Activity:	Inactive Permit

Facility Id:	209063
Business Type:	6HK40
EPA Id Number:	Not reported
APN:	124-461-24-00
Last HMMD Inspection:	02/21/2008
Permit Status:	INAC
Permit Expiration:	06/30/2009
Facility Owner:	MAGNUS INVESTMENT GROUP INC.
Facility Address:	3742 FLOWERWOOD LN
Facility City:	FALLBROOK
Facility State:	CA
Facility Zip:	92028
UST Owner:	Not reported

GOLF CLUB OF CALIFORNIA (Continued) **S106070492**

Handle Regulated Hazmat: Not reported
Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: Not reported
Treat Haz Waste: Not reported
Generate Medical Waste: Not reported

Violations Inactive Permits:
Facility Id: 209063
Update Date: 11/02/2012
Inspection Date: 02/21/2008
Violation Code: 6HV0135
Violation: MANIFESTS/RECEIPTS FOR 3 YEARS NOT ONSIT
Violation Citation: Hazardous waste manifests/receipts for 3 years are not maintained onsite to document proper disposal of hazardous waste. CCR 66262.40(a) & 25160.2(b)(3)
Activity: Inactive Permit

Facility Id: 211556
Business Type: 6HK40
EPA Id Number: Not reported
APN: 124-461-24-00
Last HMMD Inspection: 12/09/2009
Permit Status: OPEN
Permit Expiration: 03/31/2013
Facility Owner: GCC PARTNERS, INC
Facility Address: 3742 FLOWERWOOD LN
Facility City: FALLBROOK
Facility State: CA
Facility Zip: 92028
UST Owner: Not reported
Handle Regulated Hazmat: Y
Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: Y
Treat Haz Waste: Not reported
Generate Medical Waste: Not reported

Active Permits:
Facility Id: 211556
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 132 AQUEOUS SOL'N WITH METALS
Other Information: PARTS WASHER
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Facility Id: 211556
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 888 USED OIL FILTERS
Other Information: Not reported
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

GOLF CLUB OF CALIFORNIA (Continued) **S106070492**

Facility Id:	211556
Update Date:	11/02/2012
Case Number:	8002-05-9
Name:	OIL
Other Information:	MOTOR OIL
Material Waste:	Material
Hazardous Categories 1:	FIRE
Hazardous Categories 2:	Not reported

Facility Id:	211556
Update Date:	11/02/2012
Case Number:	8006-61-9
Name:	GASOLINE
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	FIRE
Hazardous Categories 2:	Not reported

Facility Id:	211556
Update Date:	11/02/2012
Case Number:	Not reported
Name:	PHOSPHATES, SULFATES & OXIDES OF AMMONIUM/MANGANESE/IRON
Other Information:	FERTILIZER - VARIOUS MIXTURES
Material Waste:	Material
Hazardous Categories 1:	ACUTE
Hazardous Categories 2:	Not reported

Facility Id:	211556
Update Date:	11/02/2012
Case Number:	68476-34-6
Name:	DIESEL
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	FIRE
Hazardous Categories 2:	Not reported

Facility Id:	211556
Update Date:	11/02/2012
Case Number:	Not reported
Name:	WASTE 221 WASTE OIL & MIXED OIL
Other Information:	USED OIL
Material Waste:	Waste
Hazardous Categories 1:	Not reported
Hazardous Categories 2:	Not reported

Facility Id:	211556
Update Date:	11/02/2012
Case Number:	Not reported
Name:	WASTE 222 OIL/WATER SEPARATION SLUDGE
Other Information:	SUMP SLUDGE
Material Waste:	Waste
Hazardous Categories 1:	Not reported
Hazardous Categories 2:	Not reported

Facility Id:	211556
Update Date:	11/02/2012
Case Number:	Not reported

GOLF CLUB OF CALIFORNIA (Continued) **S106070492**

Name: WASTE 223 UNSPEC OIL CONTAINING WASTE
Other Information: OILY ABSORBENT / WASHER FILTERS
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Violations Active Permits:
Facility Id: 211556
Update Date: 11/02/2012
Inspection Date: 12/09/2009
Violation Code: 6HV0304
Violation: WASTE DETERMINATION NOT MADE
Violation Citation: Generator of a waste has not determined if that waste is a hazardous waste as defined by law. CCR 66262.11 & 66260.200(c)
Activity: ACTIVE

Facility Id: 211556
Update Date: 11/02/2012
Inspection Date: 12/09/2009
Violation Code: 6HV0226
Violation: HW NOT ACCUMULATED IN TANK/CONTAINER
Violation Citation: Did not accumulate waste in container or tank. 66262.34 (d)(2)
Activity: ACTIVE

Facility Id: 211556
Update Date: 11/02/2012
Inspection Date: 12/09/2009
Violation Code: 6HV0407
Violation: EMPLOYEE TRAINING NOT ADEQUATE
Violation Citation: Employee training program for small quantity generator of hazardous waste is inadequate. CFR 262.34(d)(5)(iii)
Activity: ACTIVE

Facility Id: 211556
Update Date: 11/02/2012
Inspection Date: 12/09/2009
Violation Code: 6HV0227
Violation: HAZWASTE TANK/CONTAINER W/O LABEL/DATE
Violation Citation: Failed to properly label/date hazardous waste container &/or tank. 66262.34(f)
Activity: ACTIVE

Facility Id: 211556
Business Type: 6HK40
EPA Id Number: Not reported
APN: 124-461-24-00
Last HMMD Inspection: 12/09/2009
Permit Status: OPEN
Permit Expiration: 03/31/2013
Facility Owner: GCC PARTNERS, INC
Facility Address: 3742 FLOWERWOOD LN
Facility City: FALLBROOK
Facility State: CA
Facility Zip: 92028
UST Owner: Not reported
Handle Regulated Hazmat: Not reported

GOLF CLUB OF CALIFORNIA (Continued) **S106070492**

Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: Not reported
Treat Haz Waste: Not reported
Generate Medical Waste: Not reported

Active Permits:
Facility Id: 211556
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 132 AQUEOUS SOL'N WITH METALS
Other Information: PARTS WASHER
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Facility Id: 211556
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 888 USED OIL FILTERS
Other Information: Not reported
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Facility Id: 211556
Update Date: 11/02/2012
Case Number: 8002-05-9
Name: OIL
Other Information: MOTOR OIL
Material Waste: Material
Hazardous Categories 1: FIRE
Hazardous Categories 2: Not reported

Facility Id: 211556
Update Date: 11/02/2012
Case Number: 8006-61-9
Name: GASOLINE
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: FIRE
Hazardous Categories 2: Not reported

Facility Id: 211556
Update Date: 11/02/2012
Case Number: Not reported
Name: PHOSPHATES, SULFATES & OXIDES OF AMMONIUM/MANGANESE/IRON
Other Information: FERTILIZER - VARIOUS MIXTURES
Material Waste: Material
Hazardous Categories 1: ACUTE
Hazardous Categories 2: Not reported

Facility Id: 211556
Update Date: 11/02/2012
Case Number: 68476-34-6
Name: DIESEL
Other Information: Not reported
Material Waste: Material

GOLF CLUB OF CALIFORNIA (Continued) **S106070492**

Hazardous Categories 1: FIRE
Hazardous Categories 2: Not reported

Facility Id: 211556
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 221 WASTE OIL & MIXED OIL
Other Information: USED OIL
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Facility Id: 211556
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 222 OIL/WATER SEPARATION SLUDGE
Other Information: SUMP SLUDGE
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Facility Id: 211556
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 223 UNSPEC OIL CONTAINING WASTE
Other Information: OILY ABSORBENT / WASHER FILTERS
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Violations Active Permits:
Facility Id: 211556
Update Date: 11/02/2012
Inspection Date: 12/09/2009
Violation Code: 6HV0304
Violation: WASTE DETERMINATION NOT MADE
Violation Citation: Generator of a waste has not determined if that waste is a hazardous waste as defined by law. CCR 66262.11 & 66260.200(c)
Activity: ACTIVE

Facility Id: 211556
Update Date: 11/02/2012
Inspection Date: 12/09/2009
Violation Code: 6HV0226
Violation: HW NOT ACCUMULATED IN TANK/CONTAINER
Violation Citation: Did not accumulate waste in container or tank. 66262.34 (d)(2)
Activity: ACTIVE

Facility Id: 211556
Update Date: 11/02/2012
Inspection Date: 12/09/2009
Violation Code: 6HV0407
Violation: EMPLOYEE TRAINING NOT ADEQUATE
Violation Citation: Employee training program for small quantity generator of hazardous waste is inadequate. CFR 262.34(d)(5)(iii)
Activity: ACTIVE

GOLF CLUB OF CALIFORNIA (Continued) **S106070492**

Facility Id:	211556
Update Date:	11/02/2012
Inspection Date:	12/09/2009
Violation Code:	6HV0227
Violation:	HAZWASTE TANK/CONTAINER W/O LABEL/DATE
Violation Citation:	Failed to properly label/date hazardous waste container &/or tank. 66262.34(f)
Activity:	ACTIVE

Click this hyperlink while viewing on your computer to access
3 additional CA_HMMD: record(s) in the EDR Site Report.

Count: 4 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
FALLBROOK	S100727095	CHEVRON FALLBROOK	1285 MISSION RD S	92028	LUST, EMI
FALLBROOK	S105030271	CHEVRON	1285 MISSION RD S	92028	LUST
FALLBROOK	S105035419	FALLBROOK AUTO PARTS	762 MISSION RD E	92028	LUST
FALLBROOK	S105691005	RANCHO VIEJO	MONSERATE RANCHO	92028	SAN DIEGO CO. SAM, SLIC, San Diego Co. HMMD

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/30/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: EPA
Telephone: N/A
Last EDR Contact: 01/26/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/30/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: EPA
Telephone: N/A
Last EDR Contact: 01/26/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/30/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: EPA
Telephone: N/A
Last EDR Contact: 01/26/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 03/26/2015
Date Data Arrived at EDR: 04/08/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/06/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 01/11/2016
Date Data Arrived at EDR: 01/22/2016
Date Made Active in Reports: 03/18/2016
Number of Days to Update: 56

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/19/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 01/11/2016
Date Data Arrived at EDR: 01/22/2016
Date Made Active in Reports: 03/18/2016
Number of Days to Update: 56

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/19/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/09/2015
Date Data Arrived at EDR: 06/26/2015
Date Made Active in Reports: 09/16/2015
Number of Days to Update: 82

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/18/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/09/2015
Date Data Arrived at EDR: 06/26/2015
Date Made Active in Reports: 09/16/2015
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/18/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/09/2015
Date Data Arrived at EDR: 06/26/2015
Date Made Active in Reports: 09/16/2015
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/18/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/09/2015
Date Data Arrived at EDR: 06/26/2015
Date Made Active in Reports: 09/16/2015
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/18/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/09/2015
Date Data Arrived at EDR: 06/26/2015
Date Made Active in Reports: 09/16/2015
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/18/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 13

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/16/2016
Next Scheduled EDR Contact: 05/30/2016
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/10/2015
Date Data Arrived at EDR: 09/11/2015
Date Made Active in Reports: 11/03/2015
Number of Days to Update: 53

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/10/2015
Date Data Arrived at EDR: 09/11/2015
Date Made Active in Reports: 11/03/2015
Number of Days to Update: 53

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/22/2015
Date Data Arrived at EDR: 06/26/2015
Date Made Active in Reports: 09/16/2015
Number of Days to Update: 82

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/29/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/03/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/03/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/03/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/03/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/16/2015
Date Data Arrived at EDR: 11/18/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 64

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/17/2016
Next Scheduled EDR Contact: 05/30/2016
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/14/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 56

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/08/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/27/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015
Date Data Arrived at EDR: 10/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 118
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/28/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 55
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 08/20/2015
Date Data Arrived at EDR: 10/30/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 111
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/24/2015
Date Data Arrived at EDR: 12/01/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 34
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Semi-Annually

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 11/04/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 52
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/14/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 56

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/08/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/14/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 56
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/11/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/13/2015
Date Data Arrived at EDR: 10/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 118
Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 41
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 08/20/2015
Date Data Arrived at EDR: 10/30/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 111
Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 52

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 12/14/2014
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 28

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/27/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/29/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 67

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 11/24/2015
Date Data Arrived at EDR: 12/01/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 34

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Semi-Annually

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/03/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/03/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/28/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/04/2015
Date Data Arrived at EDR: 12/08/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 44

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/07/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/22/2015
Date Data Arrived at EDR: 12/23/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/22/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/08/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/17/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 53

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 11/23/2015
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 58

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/14/2016
Next Scheduled EDR Contact: 05/30/2016
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/01/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: No Update Planned

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 09/17/2015
Date Data Arrived at EDR: 12/04/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 76

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/01/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/03/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/03/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 09/30/2015
Date Data Arrived at EDR: 01/19/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 63

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/11/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/17/2015
Date Data Arrived at EDR: 12/04/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 76

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/01/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 11/25/2015
Date Data Arrived at EDR: 12/01/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 16

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 03/14/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 12/17/2015
Date Data Arrived at EDR: 12/22/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 48

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/07/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 03/11/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/07/2015
Date Data Arrived at EDR: 12/08/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 44
Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/08/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/24/2015
Date Data Arrived at EDR: 06/26/2015
Date Made Active in Reports: 09/02/2015
Number of Days to Update: 68
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/30/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/16/2015
Date Data Arrived at EDR: 01/27/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 55
Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/27/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/14/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 56
Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/14/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 56
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/09/2015
Date Data Arrived at EDR: 06/26/2015
Date Made Active in Reports: 09/16/2015
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/18/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Varies

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/11/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/15/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54
Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/19/2016
Next Scheduled EDR Contact: 05/30/2016
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 09/01/2015
Date Data Arrived at EDR: 09/03/2015
Date Made Active in Reports: 11/03/2015
Number of Days to Update: 61
Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/16/2016
Next Scheduled EDR Contact: 05/30/2016
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88
Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/09/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6
Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/12/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14
Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/24/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 110

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/24/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/08/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2015
Date Data Arrived at EDR: 08/26/2015
Date Made Active in Reports: 11/03/2015
Number of Days to Update: 69

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3
Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/12/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/12/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/06/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 31
Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/08/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/26/2015
Date Data Arrived at EDR: 07/10/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 95
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 02/08/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/13/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/11/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/29/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/07/2015
Date Data Arrived at EDR: 07/09/2015
Date Made Active in Reports: 09/16/2015
Number of Days to Update: 69
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/07/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/03/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 46

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/24/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 09/30/2015
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/26/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/15/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 11/23/2015
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 86

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 02/08/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/26/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/27/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 69

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/24/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/20/2015
Date Data Arrived at EDR: 10/27/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 69

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/24/2016
Next Scheduled EDR Contact: 07/11/2016
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/18/2015
Date Data Arrived at EDR: 09/01/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 125

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/02/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/04/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/04/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/20/2015
Date Data Arrived at EDR: 09/09/2015
Date Made Active in Reports: 11/03/2015
Number of Days to Update: 55

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/08/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/28/2015
Date Data Arrived at EDR: 12/29/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 23

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/29/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/10/2015
Date Data Arrived at EDR: 08/27/2015
Date Made Active in Reports: 10/01/2015
Number of Days to Update: 35

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 02/05/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 09/25/2015
Date Made Active in Reports: 11/05/2015
Number of Days to Update: 41

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/22/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 01/26/2016
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 53

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 01/28/2016
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/18/2015
Date Data Arrived at EDR: 11/23/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 59

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/16/2016
Next Scheduled EDR Contact: 05/30/2016
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 10/14/2015
Date Made Active in Reports: 12/11/2015
Number of Days to Update: 58

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/11/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Annually

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/23/2015
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 58
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/24/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/11/2016
Date Data Arrived at EDR: 01/13/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 40
Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/13/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/17/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 53
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 11/10/2015
Date Data Arrived at EDR: 12/08/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 44
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/08/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/16/2015
Date Data Arrived at EDR: 11/18/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 64
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/17/2016
Next Scheduled EDR Contact: 05/30/2016
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 12/07/2015
Date Data Arrived at EDR: 12/08/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 44
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 03/08/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/17/2015
Date Made Active in Reports: 03/01/2016
Number of Days to Update: 75
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/10/2015
Date Data Arrived at EDR: 01/05/2016
Date Made Active in Reports: 02/12/2016
Number of Days to Update: 38
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 07/23/2015
Date Data Arrived at EDR: 09/15/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 28
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/16/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/15/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/19/2016
Next Scheduled EDR Contact: 06/16/2016
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/23/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/20/2015
Date Data Arrived at EDR: 09/23/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 103

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 03/23/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/23/2015
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 86

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/24/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/11/2016
Date Data Arrived at EDR: 01/12/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 41

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/11/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/11/2016
Date Data Arrived at EDR: 01/14/2016
Date Made Active in Reports: 03/01/2016
Number of Days to Update: 47

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/11/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
Cupa Facility List

Date of Government Version: 11/16/2015
Date Data Arrived at EDR: 12/10/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 42

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing
Cupa facility list.

Date of Government Version: 11/20/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 01/07/2015
Number of Days to Update: 44

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 02/19/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 02/02/2016
Date Data Arrived at EDR: 02/04/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 18

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/28/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/08/2015
Date Data Arrived at EDR: 09/22/2015
Date Made Active in Reports: 10/14/2015
Number of Days to Update: 22

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 12/01/2015
Date Data Arrived at EDR: 12/04/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 48

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 02/01/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 01/22/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 03/07/2016
Number of Days to Update: 31

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 02/01/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/30/2015
Date Data Arrived at EDR: 12/03/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 49

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 02/01/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 01/05/2016
Date Data Arrived at EDR: 01/08/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 45

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/04/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 12/02/2015
Date Data Arrived at EDR: 12/04/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 48

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 01/25/2016
Date Data Arrived at EDR: 01/27/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 26

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 05/19/2015
Date Data Arrived at EDR: 06/18/2015
Date Made Active in Reports: 07/22/2015
Number of Days to Update: 34

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/19/2015
Date Data Arrived at EDR: 11/23/2015
Date Made Active in Reports: 12/11/2015
Number of Days to Update: 18

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2016
Date Data Arrived at EDR: 01/26/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 27

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/19/2016
Next Scheduled EDR Contact: 05/02/2016
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/24/2014
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/04/2015
Number of Days to Update: 33
Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/08/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/19/2016
Date Data Arrived at EDR: 01/20/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 62
Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/20/2016
Next Scheduled EDR Contact: 05/02/2016
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2016
Date Data Arrived at EDR: 01/26/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 56
Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/19/2016
Next Scheduled EDR Contact: 05/02/2016
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/15/2015
Date Data Arrived at EDR: 01/29/2015
Date Made Active in Reports: 03/10/2015
Number of Days to Update: 40
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 02/19/2016
Next Scheduled EDR Contact: 05/02/2016
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 02/16/2016
Next Scheduled EDR Contact: 05/02/2016
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 11/04/2015
Date Data Arrived at EDR: 11/13/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 34
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/12/2016
Date Data Arrived at EDR: 01/15/2016
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 24
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/11/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/11/2015
Date Data Arrived at EDR: 12/14/2015
Date Made Active in Reports: 03/07/2016
Number of Days to Update: 84

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 10/05/2015
Date Data Arrived at EDR: 10/08/2015
Date Made Active in Reports: 10/15/2015
Number of Days to Update: 7

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 01/19/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/18/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 34

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List

CUPA Facility List

Date of Government Version: 11/24/2015
Date Data Arrived at EDR: 12/01/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 51

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 12/10/2015
Date Data Arrived at EDR: 12/14/2015
Date Made Active in Reports: 02/12/2016
Number of Days to Update: 60

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 01/27/2016
Date Data Arrived at EDR: 02/04/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 18
Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 02/01/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/01/2015
Date Data Arrived at EDR: 11/17/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 65
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/09/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 08/03/2015
Date Data Arrived at EDR: 08/10/2015
Date Made Active in Reports: 09/11/2015
Number of Days to Update: 32
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/09/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/01/2015
Date Data Arrived at EDR: 11/11/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 36
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Quarterly

PLACER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 12/09/2015
Date Data Arrived at EDR: 12/11/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 41

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/07/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/20/2016
Date Data Arrived at EDR: 01/22/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 60

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/20/2016
Date Data Arrived at EDR: 01/22/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 60

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/02/2015
Date Data Arrived at EDR: 01/05/2016
Date Made Active in Reports: 02/12/2016
Number of Days to Update: 38

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/02/2015
Date Data Arrived at EDR: 01/05/2016
Date Made Active in Reports: 02/12/2016
Number of Days to Update: 38

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/05/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/18/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 52

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/08/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/07/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/03/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/08/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/08/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 12/18/2015
Date Data Arrived at EDR: 12/22/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 48
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 07/04/2016
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 12/07/2015
Date Data Arrived at EDR: 12/10/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 42
Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/21/2016
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 10/14/2015
Date Data Arrived at EDR: 10/15/2015
Date Made Active in Reports: 11/16/2015
Number of Days to Update: 32
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/14/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 12/17/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 53
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/14/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 11/18/2015
Date Data Arrived at EDR: 11/24/2015
Date Made Active in Reports: 12/11/2015
Number of Days to Update: 17

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/29/2016
Next Scheduled EDR Contact: 06/13/2016
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/17/2015
Date Data Arrived at EDR: 11/23/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 59

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/08/2016
Next Scheduled EDR Contact: 05/23/2016
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List

CUPA facility listing.

Date of Government Version: 11/18/2015
Date Data Arrived at EDR: 11/23/2015
Date Made Active in Reports: 12/11/2015
Number of Days to Update: 18

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 12/09/2015
Date Data Arrived at EDR: 12/10/2015
Date Made Active in Reports: 01/21/2016
Number of Days to Update: 42

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/22/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 10/30/2015
Date Data Arrived at EDR: 12/14/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 56

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/14/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 10/30/2015
Date Data Arrived at EDR: 12/14/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 56

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/14/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 01/11/2016
Date Data Arrived at EDR: 01/14/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 39

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 01/11/2016
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/05/2016
Date Data Arrived at EDR: 01/07/2016
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 32

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/23/2015
Next Scheduled EDR Contact: 04/11/2016
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 12/07/2015
Date Data Arrived at EDR: 12/08/2015
Date Made Active in Reports: 12/17/2015
Number of Days to Update: 9

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/07/2016
Next Scheduled EDR Contact: 06/20/2016
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 10/29/2015
Date Data Arrived at EDR: 10/30/2015
Date Made Active in Reports: 12/11/2015
Number of Days to Update: 42

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 03/04/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/28/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 53

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/30/2015
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/14/2016
Next Scheduled EDR Contact: 05/30/2016
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/28/2015
Date Data Arrived at EDR: 01/29/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 53

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/25/2016
Next Scheduled EDR Contact: 05/09/2016
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/30/2015
Date Data Arrived at EDR: 12/17/2015
Date Made Active in Reports: 02/08/2016
Number of Days to Update: 53

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/17/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 46

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 02/01/2016
Next Scheduled EDR Contact: 04/18/2016
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/05/2016
Date Made Active in Reports: 02/22/2016
Number of Days to Update: 17

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 02/01/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/18/2016
Next Scheduled EDR Contact: 05/30/2016
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/17/2015
Date Made Active in Reports: 08/12/2015
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/15/2016
Next Scheduled EDR Contact: 04/25/2016
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 02/01/2016
Date Data Arrived at EDR: 02/03/2016
Date Made Active in Reports: 03/22/2016
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/03/2016
Next Scheduled EDR Contact: 05/16/2016
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/24/2015
Date Made Active in Reports: 08/18/2015
Number of Days to Update: 25

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/19/2016
Next Scheduled EDR Contact: 05/02/2016
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 03/21/2016
Next Scheduled EDR Contact: 06/06/2016
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 03/19/2015
Date Made Active in Reports: 04/07/2015
Number of Days to Update: 19

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/14/2016
Next Scheduled EDR Contact: 06/27/2016
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

GIRD ROAD PROPERTY
GIRD ROAD/LIVE OAK CREEK CIRCLE
FALLBROOK, CA 92028

TARGET PROPERTY COORDINATES

Latitude (North):	33.322141 - 33° 19' 19.71''
Longitude (West):	117.195851 - 117° 11' 45.06''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	481770.8
UTM Y (Meters):	3686825.2
Elevation:	287 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5641328 BONSALL, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

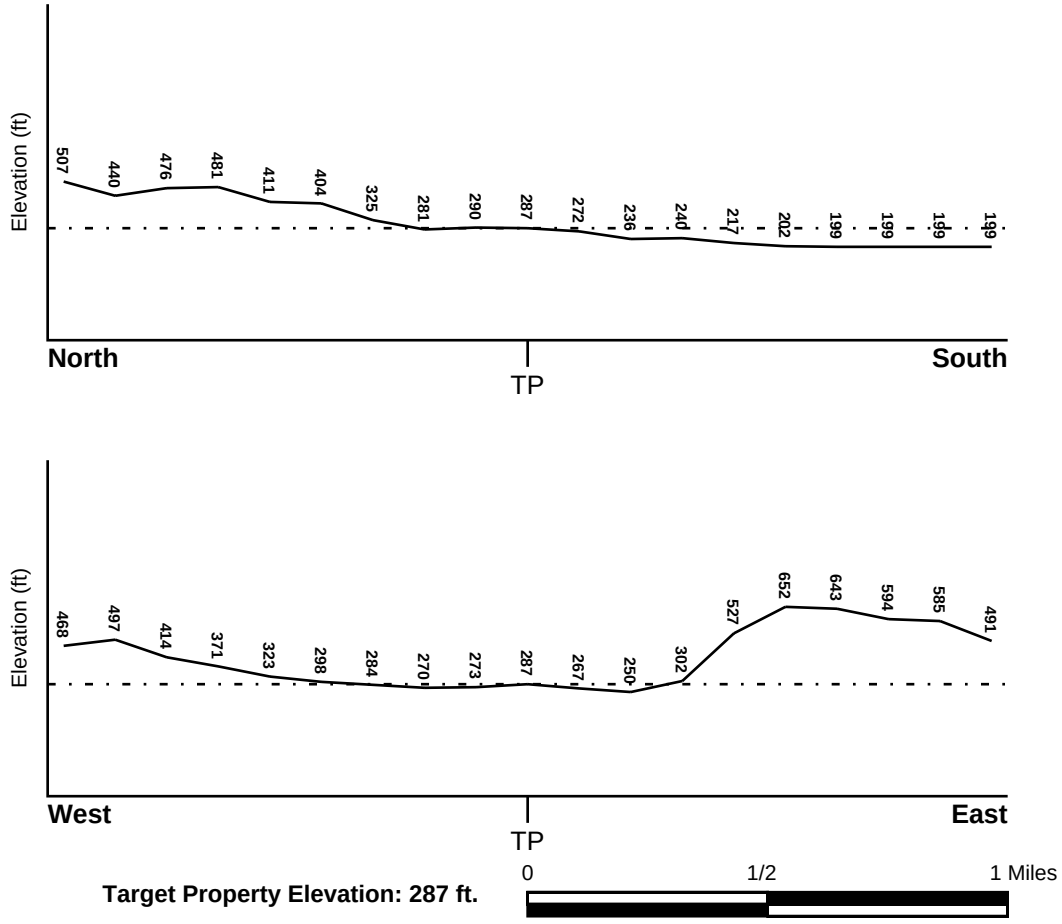
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 287 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAN DIEGO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 06073C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
BONSALL	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

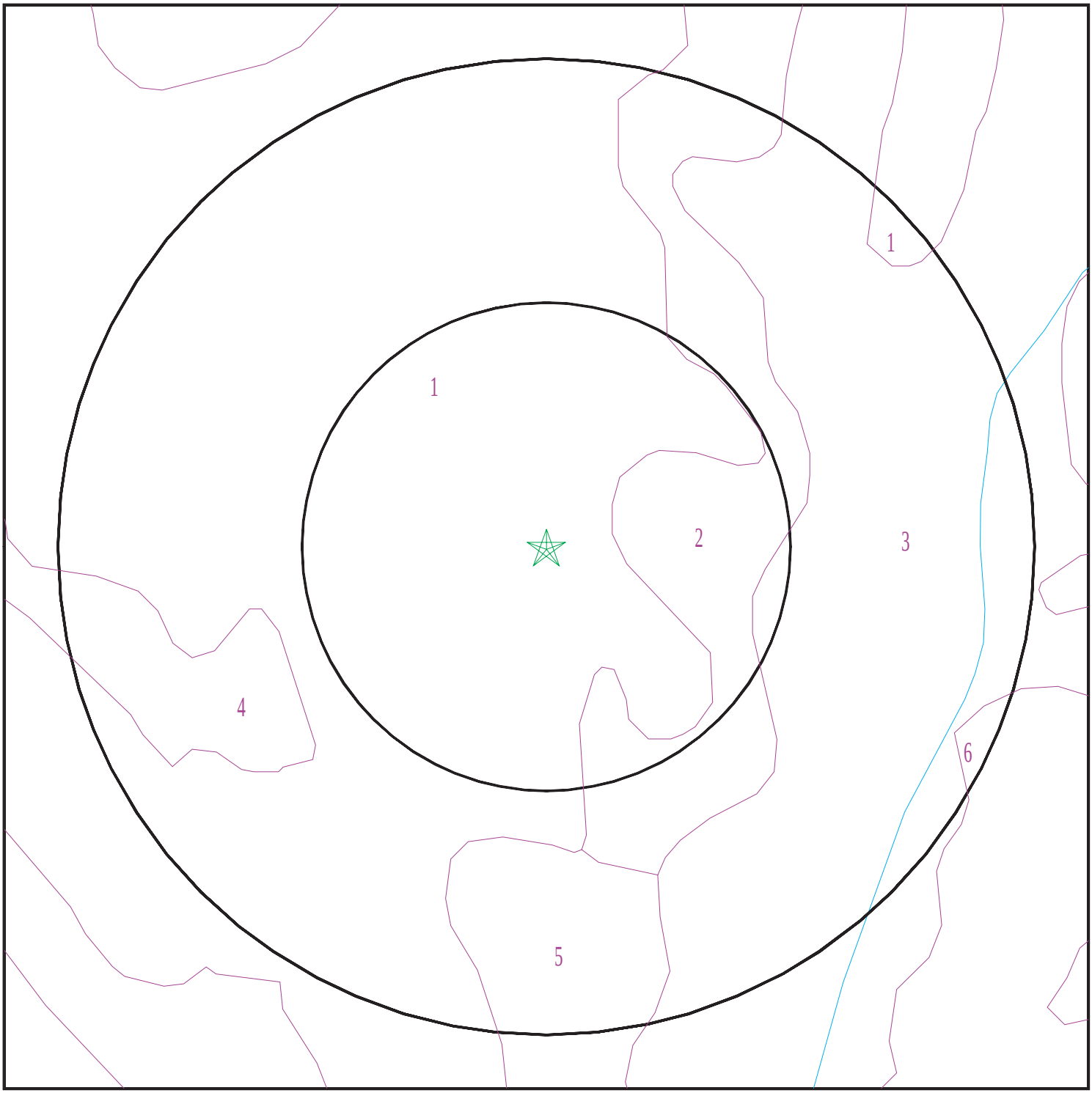
Era:	Mesozoic
System:	Cretaceous
Series:	Cretaceous granitic rocks
Code:	Kg *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Plutonic and Intrusive Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4580149.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Gird Road Property	CLIENT:	Padre Associates, Inc
ADDRESS:	Gird Road/Live Oak Creek Circle Fallbrook CA 92028	CONTACT:	Matt Miller
LAT/LONG:	33.322141 / 117.195851	INQUIRY #:	4580149.2s
		DATE:	April 01, 2016 12:51 pm

Copyright © 2016 EDR, Inc. © 2015 TomTom Rel. 2015.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	16 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
3	59 inches	74 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6

Soil Map ID: 2

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	9 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 7.3 Min: 6.1
3	59 inches	74 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6

Soil Map ID: 3

Soil Component Name: GRANGEVILLE

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 92 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 7.9
2	11 inches	59 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 8.4 Min: 7.9

Soil Map ID: 4

Soil Component Name: VISALIA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 6.1
2	11 inches	40 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6.5 Min: 6.1
3	40 inches	59 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 6.1

Soil Map ID: 5

Soil Component Name: ALTAMONT

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	27 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
2	27 inches	35 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
3	35 inches	40 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 6

Soil Component Name: CIENEBA

Soil Surface Texture: coarse sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 5 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	coarse sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 6 Min: 5.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	7 inches	11 inches	weathered bedrock	Not reported	Not reported	Max: Min:	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000132397	1/4 - 1/2 Mile NE
2	USGS40000132402	1/4 - 1/2 Mile NE
A3	USGS40000132275	1/2 - 1 Mile South
5	USGS40000132427	1/2 - 1 Mile NNE
8	USGS40000132255	1/2 - 1 Mile South
B9	USGS40000132259	1/2 - 1 Mile SSE
10	USGS40000132461	1/2 - 1 Mile North
C11	USGS40000132444	1/2 - 1 Mile NNE
C13	USGS40000132450	1/2 - 1 Mile NNE
D15	USGS40000132274	1/2 - 1 Mile SE
E16	USGS40000132241	1/2 - 1 Mile SSW
F18	USGS40000132273	1/2 - 1 Mile SE
G19	USGS40000132227	1/2 - 1 Mile SSW
H20	USGS40000132219	1/2 - 1 Mile South
23	USGS40000132217	1/2 - 1 Mile South
24	USGS40000132458	1/2 - 1 Mile NE
G26	USGS40000132220	1/2 - 1 Mile SSW
I28	USGS40000132465	1/2 - 1 Mile NNE
G31	USGS40000132207	1/2 - 1 Mile SSW
J32	USGS40000132226	1/2 - 1 Mile SSE
G33	USGS40000132208	1/2 - 1 Mile SSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
I34	USGS40000132471	1/2 - 1 Mile NNE
L36	USGS40000132254	1/2 - 1 Mile SE
K37	USGS40000132209	1/2 - 1 Mile SSW
39	USGS40000132198	1/2 - 1 Mile South
K40	USGS40000132205	1/2 - 1 Mile SSW
I41	USGS40000132477	1/2 - 1 Mile NNE
45	USGS40000132441	1/2 - 1 Mile NW
M46	USGS40000132210	1/2 - 1 Mile SSW
N47	USGS40000132221	1/2 - 1 Mile SSW
L48	USGS40000132248	1/2 - 1 Mile SE
49	USGS40000132480	1/2 - 1 Mile NNE
O52	USGS40000132229	1/2 - 1 Mile SW
M53	USGS40000132199	1/2 - 1 Mile SSW
M54	USGS40000132211	1/2 - 1 Mile SSW
M56	USGS40000132200	1/2 - 1 Mile SSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

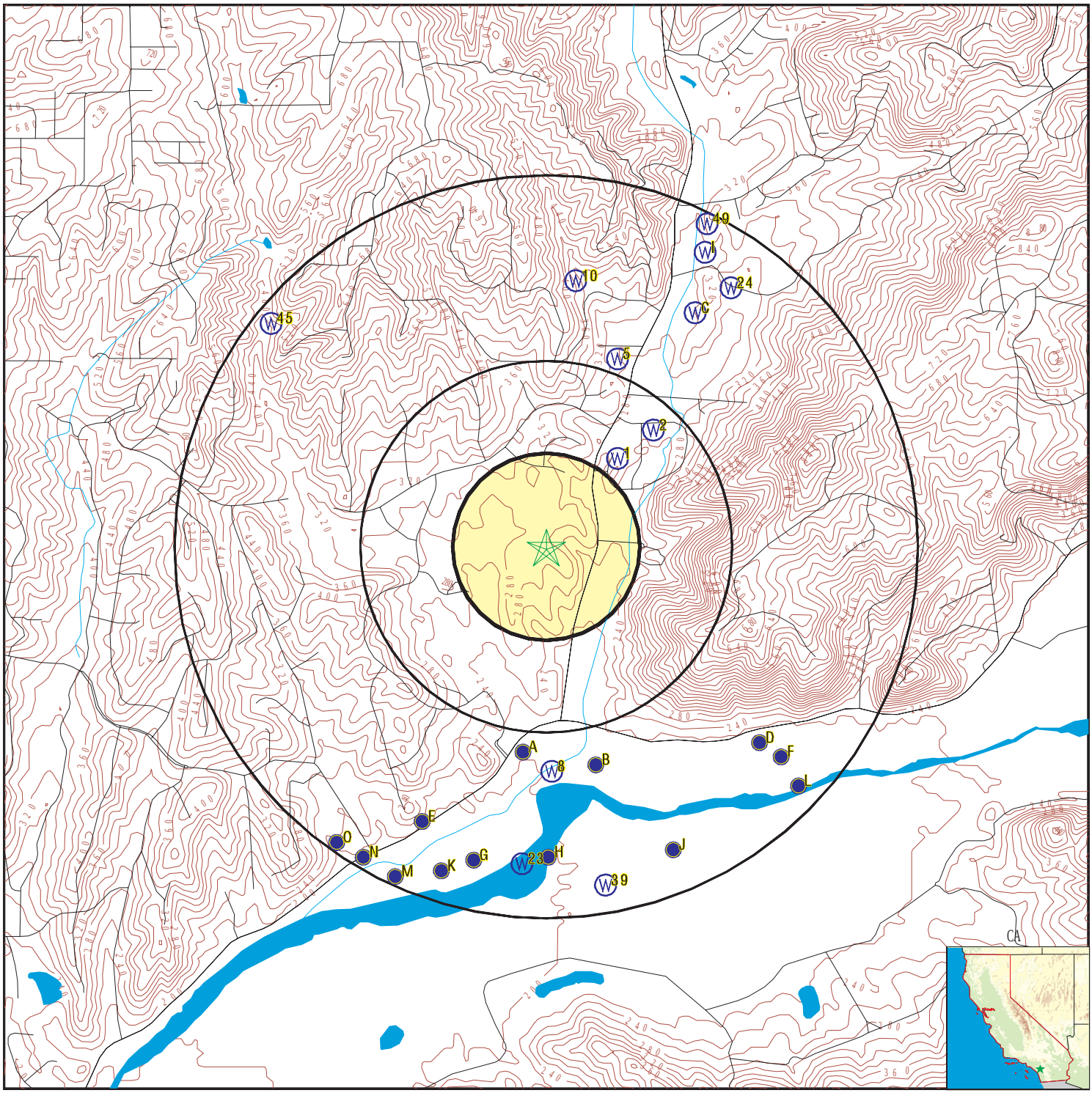
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A4	CADW60000034191	1/2 - 1 Mile South
B6	CADW60000029461	1/2 - 1 Mile South
A7	CADW60000029462	1/2 - 1 Mile South
D12	CADW60000003121	1/2 - 1 Mile SE
D14	CADW60000033502	1/2 - 1 Mile SE
E17	CADW60000029463	1/2 - 1 Mile SSW
H21	CADW60000029635	1/2 - 1 Mile South
G22	CADW60000034200	1/2 - 1 Mile SSW
G25	CADW60000029473	1/2 - 1 Mile South
F27	CADW60000029457	1/2 - 1 Mile SE
J29	CADW60000034199	1/2 - 1 Mile SSE
K30	CADW60000034195	1/2 - 1 Mile SSW
K35	CADW60000029471	1/2 - 1 Mile SSW
K38	CADW60000029472	1/2 - 1 Mile SSW
K42	CADW60000029468	1/2 - 1 Mile SSW
L43	CADW60000029458	1/2 - 1 Mile SE
K44	CADW60000034197	1/2 - 1 Mile SSW
M50	CADW60000034194	1/2 - 1 Mile SSW
O51	CADW60000029639	1/2 - 1 Mile SW
N55	CADW60000029470	1/2 - 1 Mile SSW

PHYSICAL SETTING SOURCE MAP - 4580149.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Gird Road Property	CLIENT:	Padre Associates, Inc
ADDRESS:	Gird Road/Live Oak Creek Circle Fallbrook CA 92028	CONTACT:	Matt Miller
LAT/LONG:	33.322141 / 117.195851	INQUIRY #:	4580149.2s
		DATE:	April 01, 2016 12:50 pm

Copyright © 2016 EDR, Inc. © 2015 TomTom Rel. 2015.

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
NE **FED USGS** **USGS40000132397**
1/4 - 1/2 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331932117113001		
Monloc name:	010S003W09A001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3255883
Longitude:	-117.1925337	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	271.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

2
NE **FED USGS** **USGS40000132402**
1/4 - 1/2 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331936117112401		
Monloc name:	010S003W10D001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3266994
Longitude:	-117.190867	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	261.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-08-01	7.00	

A3
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000132275**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331852117114501		
Monloc name:	010S003W16B001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3144775
Longitude:	-117.1967005	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	200.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	60
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 4

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1972-04-26	0.02		1966-07-22	27.32	
1966-07-01	27.00		1953-12-02	28.62	

A4
South
1/2 - 1 Mile
Lower

CA WELLS **CADW60000034191**

Objectid:	34191
Latitude:	33.3145
Longitude:	-117.1976
Site code:	333145N1171976W001
State well numbe:	10S03W16B001S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego

Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000034191

5
NNE **FED USGS** **USGS40000132427**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331946117113001		
Monloc name:	010S003W04R001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3294771
Longitude:	-117.1925337	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	280.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19470101	Welldepth:	60
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-08-01	8.00	

B6
South **CA WELLS** **CADW60000029461**
1/2 - 1 Mile
Lower

Objectid:	29461
Latitude:	33.3136
Longitude:	-117.194
Site code:	333136N1171940W001
State well numbe:	10S03W16A001S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego

Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029461

A7
South
1/2 - 1 Mile
Lower

CA WELLS **CADW60000029462**

Objectid:	29462
Latitude:	33.3134
Longitude:	-117.1965
Site code:	333134N1171965W001
State well numbe:	10S03W16B002S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029462

8
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000132255**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331848117114101		
Monloc name:	010S003W16B002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3133664
Longitude:	-117.1955894	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	200.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19500101	Welldepth:	75
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 3

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1966-07-27	30.82		1966-07-01	31.00	
1950-10-20	24.33				

B9
SSE **FED USGS** **USGS40000132259**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331849117113201		
Monloc name:	010S003W16A001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3136442
Longitude:	-117.1930893	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	204.00
Vert measure units:	feet	Vertacc measure val:	.1
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 187

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1952-11-17	15.8		1952-04-21	8.02	
1950-08-19	15.95		1950-07-15	15.10	
1950-06-17	14.55		1950-05-15	14.05	
1950-04-15	14.05		1950-04-03	13.69	
1950-03-18	13.75		1950-02-18	13.7	
1950-01-14	12.7		1950-01-03	13.37	
1949-10-03	11.40		1949-09-15	10.50	
1949-08-16	10.30		1949-07-16	8.70	
1949-07-05	8.35		1949-06-15	7.90	
1949-05-18	7.20		1949-04-19	8.45	
1949-04-04	10.71		1949-03-15	13.80	
1949-02-16	14.95		1949-01-15	14.95	
1949-01-03	14.81		1948-12-15	14.65	
1948-11-15	14.25		1948-10-16	13.50	
1948-10-04	13.16		1948-09-18	12.75	
1948-08-17	11.81		1948-08-16	11.20	
1948-07-20	10.90		1948-07-12	10.60	
1948-06-16	10.25		1948-05-15	9.95	
1948-04-12	9.95		1948-04-05	9.79	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1948-03-20	9.80	
1948-01-22	9.90	
1947-12-15	9.50	
1947-10-20	8.95	
1947-09-12	8.05	
1947-08-15	7.30	
1947-07-07	6.29	
1947-05-16	5.30	
1947-04-07	3.47	
1947-02-15	4.40	
1947-01-06	5.57	
1946-11-15	7.80	
1946-10-07	7.38	
1946-08-21	6.55	
1946-07-04	5.35	
1946-04-04	3.79	
1945-10-02	6.02	
1945-04-02	3.77	
1944-10-02	6.29	
1944-04-03	3.94	
1943-12-14	3.53	
1943-10-12	6.38	
1943-08-17	5.46	
1943-06-15	4.44	
1943-04-12	3.46	
1943-02-15	3.38	
1942-12-14	4.15	
1942-10-19	5.81	
1942-08-24	5.35	
1942-06-15	4.30	
1942-04-15	3.38	
1942-02-16	3.64	
1941-12-15	3.14	
1941-10-13	3.99	
1941-08-18	4.27	
1941-06-16	4.03	
1941-04-14	2.56	
1941-02-17	3.32	
1940-12-16	4.68	
1940-10-14	6.18	
1940-08-12	5.60	
1940-06-17	4.73	
1940-04-15	4.14	
1940-02-12	3.38	
1939-12-18	4.55	
1939-10-16	5.03	
1939-08-14	5.83	
1939-06-16	5.02	
1939-05-15	4.48	
1939-03-16	3.92	
1939-02-15	3.75	
1938-12-15	4.16	
1938-10-15	4.82	
1938-07-08	4.87	
1937-10-29	5.24	
1948-02-21	9.85	
1948-01-05	9.71	
1947-11-19	8.75	
1947-10-06	8.50	
1947-09-02	7.75	
1947-07-16	6.60	
1947-06-16	5.70	
1947-04-16	4.80	
1947-03-14	4.50	
1947-01-18	4.80	
1946-12-14	7.30	
1946-10-18	7.54	
1946-09-16	7.00	
1946-07-15	5.08	
1946-06-15	5.10	
1946-01-07	3.78	
1945-07-02	4.92	
1945-01-01	3.94	
1944-07-03	4.72	
1944-01-18	3.83	
1943-11-16	5.32	
1943-09-14	6.04	
1943-07-14	4.80	
1943-05-14	4.23	
1943-03-15	3.00	
1943-01-18	3.85	
1942-11-16	4.66	
1942-09-14	5.60	
1942-07-13	4.61	
1942-05-18	4.08	
1942-03-18	2.98	
1942-01-13	3.13	
1941-11-17	3.34	
1941-09-15	4.06	
1941-07-14	4.31	
1941-05-12	3.46	
1941-03-17	2.42	
1941-01-17	4.14	
1940-11-18	5.34	
1940-09-16	5.93	
1940-07-15	5.28	
1940-05-13	4.43	
1940-03-18	3.93	
1940-01-15	3.38	
1939-11-13	4.70	
1939-09-15	6.27	
1939-07-14	5.42	
1939-05-16	4.51	
1939-04-14	4.14	
1939-03-01	4.01	
1939-01-12	3.76	
1938-11-14	4.51	
1938-09-12	5.21	
1937-12-15	4.77	
1937-09-13	5.55	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1937-06-10	5.09		1934-08-24	8.24	
1934-05-12	7.90		1933-07-31	7.74	
1933-05-25	6.74		1933-03-07	6.87	
1932-09-10	7.65		1932-05-27	7.24	
1932-04-14	6.84		1931-08-26	8.17	
1931-07-08	8.00		1931-06-16	7.85	
1931-03-19	7.19		1930-12-02	7.92	
1930-11-04	8.08		1930-07-18	7.80	
1930-05-19	6.76		1930-04-17	7.07	
1930-03-01	7.03		1929-12-07	7.97	
1929-10-24	8.18		1929-07-12	7.80	
1929-04-29	7.05		1928-09-13	7.86	
1928-04-11	7.01		1927-09-30	7.28	
1927-09-12	7.32		1927-04-28	6.50	
1926-10-26	7.32		1926-09-22	7.17	
1926-05-02	5.56		1926-03-28	5.98	
1925-09-30	7.73		1925-07-28	6.94	
1925-05-22	6.28		1924-08-30	7.09	
1924-05-09	5.87		1923-12-21	6.15	
1923-11-29	6.18				

10
North
1/2 - 1 Mile
Higher

FED USGS **USGS40000132461**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331957117113701		
Monloc name:	010S003W04R002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3325325
Longitude:	-117.1944782	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	360.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19430101	Welldepth:	50
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-08-01	10.00	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C11
NNE **FED USGS** **USGS40000132444**
1/2 - 1 Mile
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331952117111801		
Monloc name:	010S003W03N004S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3311437
Longitude:	-117.1892002	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	285.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19520101	Welldepth:	72
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-08-01	11.00	

D12
SE **CA WELLS** **CADW60000003121**
1/2 - 1 Mile
Lower

Objectid:	3121
Latitude:	33.3145
Longitude:	-117.1865
Site code:	333145N1171865W001
State well numbe:	10S03W10P001S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000003121

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C13
NNE
1/2 - 1 Mile
Higher | **FED USGS** | **USGS40000132450**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331953117111601		
Monloc name:	010S003W03N005S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3314215
Longitude:	-117.1886447	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	295.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	64
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-08-01	37.00	

D14
SE
1/2 - 1 Mile
Lower | **CA WELLS** | **CADW60000033502**

Objectid:	33502
Latitude:	33.3145
Longitude:	-117.1857
Site code:	333145N1171857W001
State well numbe:	10S03W15C001S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000033502

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D15
SE **FED USGS** **USGS40000132274**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331852117110501		
Monloc name:	010S003W10P001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3144776
Longitude:	-117.185589	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	210.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 8

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1955-09-01	33.08		1955-08-02	32.65	
1955-07-01	32.07		1955-06-01	31.64	
1955-05-03	31.27		1955-04-05	30.27	
1955-03-01	30.41		1955-02-15	30.60	

E16
SSW **FED USGS** **USGS40000132241**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331841117120101		
Monloc name:	010S003W16C001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.311422
Longitude:	-117.201145	Sourcemap scale:	Not Reported

Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	198.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19570101	Welldepth:	79
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1958-01-04	43.3	

E17
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADW60000029463**

Objectid:	29463
Latitude:	33.3114
Longitude:	-117.2021
Site code:	333114N1172021W001
State well numbe:	10S03W16C001S
Local well name:	’’
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	’9-7’
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029463

F18
SE
1/2 - 1 Mile
Lower

FED USGS **USGS40000132273**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331852117110201		
Monloc name:	010S003W15C001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3144776
Longitude:	-117.1847557	Sourcemap scale:	Not Reported

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	210.00
Vert measure units:	feet	Vertacc measure val:	.1
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19550101	Welldepth:	36
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 65

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1962-05-29	28.9				
1962-05-01	35.2				
Note: A nearby site that taps the same aquifer was being pumped.					
1962-03-30	34.5		1962-03-02	34.2	
1962-02-02	35.1				
1962-01-03	35.7				
Note: A nearby site that taps the same aquifer was being pumped.					
1961-12-01	34.2		1961-11-02	34.9	
1961-09-29	34.5				
1961-09-01	34.0				
Note: A nearby site that taps the same aquifer was being pumped.					
1961-08-01	33.2		1961-06-30	32.0	
1961-06-02	31.3				
Note: A nearby site that taps the same aquifer was being pumped.					
1961-05-01	30.6		1961-03-29	29.8	
1961-03-01	29.6		1961-02-01	29.5	
1960-12-29	29.3				
Note: A nearby site that taps the same aquifer was being pumped.					
1960-11-30	29.2		1960-10-31	29.4	
1960-09-30	28.7		1960-09-01	28.0	
1960-08-01	27.4		1960-06-29	26.6	
1960-06-01	26.3		1960-05-02	26.2	
1960-03-31	25.9		1960-03-01	25.9	
1960-01-29	26.0		1959-12-30	26.3	
1959-11-30	26.4		1959-10-29	25.9	
1959-09-29	25.9		1959-08-31	24.7	
1959-07-28	23.6		1959-07-01	22.6	
1959-05-29	21.9		1959-04-29	21.6	
1959-03-30	21.4		1959-03-02	21.4	
1958-10-01	21.9		1958-09-01	21.6	
1958-08-01	20.9		1958-07-01	20.1	
1956-10-02	37.10		1956-09-05	36.79	
1956-08-02	36.38		1956-06-29	35.85	
1956-06-01	35.10		1956-05-01	34.28	
1956-04-01	34.00		1956-03-01	32.64	
1956-01-30	34.97		1956-01-03	34.90	
1955-12-01	34.74		1955-10-31	34.29	
1955-10-01	33.31		1955-09-01	33.08	
1955-08-02	32.65		1955-07-01	32.07	
1955-06-01	31.64		1955-05-03	31.27	
1955-04-05	30.27		1955-03-01	30.41	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1955-02-15	30.60				

G19
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000132227**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331837117115301		
Monloc name:	010S003W16G005S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.310311
Longitude:	-117.1989228	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	195.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	100
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-07-01	33.00	

H20
South
1/2 - 1 Mile
Lower

FED USGS **USGS40000132219**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331836117114001		
Monloc name:	010S003W16H001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3100332
Longitude:	-117.1953116	Sourcemap scale:	Not Reported

Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	197.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	100
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-07-01	32.00	

H21
South
1/2 - 1 Mile
Lower

CA WELLS **CADW60000029635**

Objectid:	29635
Latitude:	33.31
Longitude:	-117.1962
Site code:	333100N1171962W001
State well numbe:	10S03W16H001S
Local well name:	’’
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	’9-7’
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029635

G22
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADW60000034200**

Objectid:	34200
Latitude:	33.3103
Longitude:	-117.1998
Site code:	333103N1171998W001
State well numbe:	10S03W16G005S
Local well name:	’’
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego

Basin code: '9-7'
Basin desc: San Luis Rey Valley
Dwr region id: 80238
Dwr region: Southern Region Office
Site id: CADW60000034200

23
South **FED USGS** **USGS40000132217**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331835117114601		
Monloc name:	010S003W16G004S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3097554
Longitude:	-117.1969783	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	197.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	100
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-07-01	32.00	

24
NE **FED USGS** **USGS40000132458**
1/2 - 1 Mile
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331956117111101		
Monloc name:	010S003W03N003S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3322548
Longitude:	-117.1872557	Sourcemap scale:	Not Reported

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	290.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

G25
South
1/2 - 1 Mile
Lower

CA WELLS **CADW60000029473**

Objectid:	29473
Latitude:	33.3098
Longitude:	-117.1979
Site code:	333098N1171979W001
State well numbe:	10S03W16G004S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029473

G26
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000132220**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331836117115601		
Monloc name:	010S003W16F003S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3100332
Longitude:	-117.1997562	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	193.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

Aquifer type: Not Reported
Construction date: 19450101 Welldepth: 77
Welldepth units: ft Wellholedepth: Not Reported
Wellholedepth units: Not Reported

Ground-water levels, Number of Measurements: 3

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1966-08-02	33.65		1966-08-01	34.00	
1958-01-06	49.7				

Note: The site was being pumped.

F27
SE **CA WELLS** **CADW60000029457**
1/2 - 1 Mile
Lower

Objectid: 29457
Latitude: 33.3134
Longitude: -117.1851
Site code: 333134N1171851W001
State well numbe: 10S03W15C002S
Local well name: ''
Well use id: 6
Well use descrip: Unknown
County id: 37
County name: San Diego
Basin code: '9-7'
Basin desc: San Luis Rey Valley
Dwr region id: 80238
Dwr region: Southern Region Office
Site id: CADW60000029457

I28
NNE **FED USGS** **USGS40000132465**
1/2 - 1 Mile
Higher

Org. Identifier: USGS-CA
Formal name: USGS California Water Science Center
Monloc Identifier: USGS-331959117111501
Monloc name: 010S003W03N001S
Monloc type: Well
Monloc desc: Not Reported
Huc code: 18070303 Drainagearea value: Not Reported
Drainagearea Units: Not Reported Contrib drainagearea: Not Reported
Contrib drainagearea units: Not Reported Latitude: 33.3330881
Longitude: -117.1883669 Sourcemap scale: Not Reported
Horiz Acc measure: 1 Horiz Acc measure units: seconds
Horiz Collection method: Interpolated from map
Horiz coord refsys: NAD83 Vert measure val: 295.00
Vert measure units: feet Vertacc measure val: 10
Vert accmeasure units: feet
Vertcollection method: Interpolated from topographic map
Vert coord refsys: NGVD29 Countrycode: US
Aquifername: Other aquifers
Formation type: Not Reported

Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-08-01	10.00	

J29
SSE **CA WELLS** **CADW60000034199**
1/2 - 1 Mile
Lower

Objectid:	34199
Latitude:	33.3103
Longitude:	-117.1904
Site code:	333103N1171904W001
State well numbe:	10S03W16G003S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000034199

K30
SSW **CA WELLS** **CADW60000034195**
1/2 - 1 Mile
Lower

Objectid:	34195
Latitude:	33.31
Longitude:	-117.2007
Site code:	333100N1172007W001
State well numbe:	10S03W16F003S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000034195

G31
SSW **FED USGS** **USGS40000132207**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331834117115401		
Monloc name:	010S003W16G001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3094777
Longitude:	-117.1992006	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	191.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1966-08-02	32.21				
1958-01-04	44.4				

Note: The site was being pumped.

J32
SSE **FED USGS** **USGS40000132226**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331837117111901		
Monloc name:	010S003W16G003S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.310311
Longitude:	-117.189478	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	193.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	100
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-07-01	31.00	

G33
SSW **FED USGS** **USGS40000132208**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331834117115601		
Monloc name:	010S003W16G002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3094777
Longitude:	-117.1997562	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	191.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	75
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 3

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1966-08-02	32.49		1966-08-01	32.00	
1958-01-06	49.3				

I34
NNE **FED USGS** **USGS40000132471**
1/2 - 1 Mile
Higher

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-332001117111501		
Monloc name:	010S003W03N002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3336436
Longitude:	-117.1883669	Sourcemap scale:	Not Reported

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	295.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-08-01	8.00	

K35
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADW60000029471**

Objectid:	29471
Latitude:	33.3095
Longitude:	-117.2001
Site code:	333095N1172001W001
State well numbe:	10S03W16G001S
Local well name:	’’
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	’9-7’
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029471

L36
SE
1/2 - 1 Mile
Lower

FED USGS **USGS40000132254**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331848117110001		
Monloc name:	010S003W15C002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3133665
Longitude:	-117.1842002	Sourcemap scale:	Not Reported

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	210.00
Vert measure units:	feet	Vertacc measure val:	.1
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19550101	Welldepth:	42
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 68

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1962-05-29	33.0		1962-05-01	33.1	
1962-03-30	39.9		1962-03-02	38.8	
1962-02-02	39.5				
1962-01-03	39.9				
Note: A nearby site that taps the same aquifer was being pumped.					
1961-12-01	38.8		1961-11-02	39.2	
1961-09-29	38.8				
1961-09-01	38.4				
Note: A nearby site that taps the same aquifer was being pumped.					
1961-08-01	37.3		1961-06-30	36.9	
1961-06-02	36.0				
Note: A nearby site that taps the same aquifer was being pumped.					
1961-05-01	35.5		1961-03-29	34.6	
1961-03-01	34.5		1961-02-01	34.4	
1960-12-29	34.2				
Note: A nearby site that taps the same aquifer was being pumped.					
1960-11-30	34.0		1960-10-31	34.5	
1960-09-30	34.1		1960-09-01	32.9	
1960-08-01	32.1		1960-06-29	31.3	
1960-06-01	31.4		1960-05-02	31.2	
1960-03-31	30.9		1960-03-01	30.5	
1960-01-29	30.8		1959-12-30	31.1	
1959-11-30	30.7		1959-10-29	30.9	
1959-09-29	30.8		1959-08-31	29.8	
1959-07-01	28.9		1959-05-29	27.0	
1959-04-29	26.8		1959-03-30	26.2	
1959-03-02	26.1		1958-10-01	26.4	
1958-09-01	26.2		1958-08-01	25.6	
1958-07-01	24.5		1958-06-02	24.2	
1958-05-01	24.2		1957-05-01	42.91	
1956-10-02	41.99		1956-09-05	41.56	
1956-08-02	40.89		1956-06-29	40.72	
1956-06-01	39.64		1956-05-01	39.05	
1956-04-01	38.78		1956-03-01	38.98	
1956-01-30	39.42		1956-01-03	39.74	
1955-12-01	39.56		1955-10-31	39.11	
1955-10-01	38.99		1955-09-01	38.57	
1955-08-02	38.17		1955-07-01	37.05	
1955-06-01	36.34		1955-05-03	35.60	
1955-04-05	34.86		1955-03-01	35.07	
1955-02-15	34.95		1955-02-09	34.77	

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

K37
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000132209**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331834117115901		
Monloc name:	010S003W16F004S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3094776
Longitude:	-117.2005895	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	192.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	80
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 3

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1966-08-02	31.65		1966-08-01	32.00	
1958-01-06	56.5				

Note: The site was being pumped.

K38
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADW60000029472**

Objectid:	29472
Latitude:	33.3095
Longitude:	-117.2007
Site code:	333095N1172007W001
State well numbe:	10S03W16G002S
Local well name:	’’
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego

Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029472

39
South **FED USGS** **USGS40000132198**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331832117113201		
Monloc name:	010S003W16Z004S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3089222
Longitude:	-117.1930893	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	200.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19390101	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

K40
SSW **FED USGS** **USGS40000132205**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331833117115801		
Monloc name:	010S003W16F009S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3091999
Longitude:	-117.2003118	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	190.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	64
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 3

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1966-08-02	31.45				
Note: A nearby site that taps the same aquifer was being pumped.					
1966-08-01	31.00				
1958-01-06	48.3				
Note: The site was being pumped.					

I41
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000132477**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-332003117111601		
Monloc name:	010S003W03M002S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3341992
Longitude:	-117.1886447	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	300.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19590101	Welldepth:	100
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-08-16	10.24	
Note: The site was being pumped.		

K42
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADW60000029468**

Objectid:	29468
Latitude:	33.3095
Longitude:	-117.2015
Site code:	333095N1172015W001
State well numbe:	10S03W16F004S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029468

L43
SE
1/2 - 1 Mile
Lower

CA WELLS **CADW60000029458**

Objectid:	29458
Latitude:	33.3125
Longitude:	-117.1845
Site code:	333125N1171845W001
State well numbe:	10S03W15C003S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029458

K44
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADW60000034197**

Objectid:	34197
Latitude:	33.3092
Longitude:	-117.2012
Site code:	333092N1172012W001
State well numbe:	10S03W16F009S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego

Basin code: '9-7'
Basin desc: San Luis Rey Valley
Dwr region id: 80238
Dwr region: Southern Region Office
Site id: CADW60000034197

45
NW
1/2 - 1 Mile
Higher

FED USGS **USGS40000132441**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331951117122801		
Monloc name:	010S003W04N001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3308658
Longitude:	-117.2086453	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	460.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19500101	Welldepth:	140
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1966-08-01	40.00	

M46
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000132210**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331834117120601		
Monloc name:	010S003W16F001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3094776
Longitude:	-117.202534	Sourcemap scale:	Not Reported

Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	190.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	60
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 25

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1966-08-02	28.42		1966-08-01	28.00	
1959-02-25	28.10		1958-11-28	37.34	
1958-08-27	38.00		1958-05-29	30.85	
1958-02-26	39.33		1958-01-06	42.9	
1957-11-27	47.59		1957-08-27	48.17	
1957-05-27	39.83		1957-02-25	34.90	
1956-11-19	45.95		1956-08-28	45.48	
1956-05-16	41.60		1956-02-15	38.05	
1955-12-05	41.20		1955-08-15	43.43	
1955-06-16	40.40		1955-02-25	34.05	
1954-11-12	39.90		1954-08-31	38.55	
1954-05-14	31.27		1954-02-23	32.06	
1953-12-15	39.30				

N47
SSW **FED USGS** **USGS40000132221**
1/2 - 1 Mile
Lower

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331836117121101		
Monloc name:	010S003W16F010S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3100332
Longitude:	-117.203923	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	192.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	85
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1966-08-01	82.2				
Note: The site was being pumped.					
1958-01-04	44.3				
Note: The site was being pumped.					

L48
SE
1/2 - 1 Mile
Lower

FED USGS **USGS40000132248**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331845117105801		
Monloc name:	010S003W15C003S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3125332
Longitude:	-117.1836446	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	211.00
Vert measure units:	feet	Vertacc measure val:	.1
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19550101	Welldepth:	42
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 86

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1962-12-14	39.9		1962-11-15	39.7	
1962-10-15	39.3		1962-09-14	39.0	
1962-08-16	38.6		1962-07-16	38.2	
1962-05-29	38.2		1962-05-01	38.7	
1962-03-30	37.7		1962-03-02	37.9	
1962-02-02	38.0		1962-01-03	38.1	
1961-12-01	36.8		1961-11-02	37.9	
1961-09-29	37.9				
1961-09-01	37.2				
Note: A nearby site that taps the same aquifer was being pumped.					
1961-08-01	35.7		1961-06-30	35.8	
1961-06-02	34.9		1961-05-01	34.2	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1961-03-29	33.1		1961-03-01	33.0	
1961-02-01	32.8				
1960-12-29	32.6				
Note: A nearby site that taps the same aquifer was being pumped.					
1960-11-30	32.5				
1960-10-31	33.2				
Note: A nearby site that taps the same aquifer was being pumped.					
1960-09-30	32.5		1960-09-01	31.6	
1960-08-01	30.2		1960-06-29	29.7	
1960-06-01	30.0		1960-05-02	29.5	
1960-03-31	29.4		1960-03-01	29.5	
1960-01-29	29.7		1959-12-30	29.5	
1959-11-30	29.0		1959-10-29	29.6	
1959-09-29	29.7		1959-08-31	28.8	
1959-07-28	28.1		1959-07-01	27.0	
1959-05-29	26.0		1959-04-29	25.5	
1959-03-30	24.8		1959-03-02	24.5	
1959-01-29	24.3		1959-01-02	24.2	
1958-12-01	24.5		1958-10-31	24.6	
1958-10-01	24.8		1958-09-01	24.6	
1958-08-01	24.0		1958-07-01	23.0	
1958-06-02	22.2		1958-05-01	22.0	
1958-04-09	20.9		1957-07-31	41.5	
1957-06-28	40.8		1957-03-28	39.2	
1957-02-28	40.2		1957-01-31	40.3	
1957-01-02	40.5		1956-12-04	40.5	
1956-11-07	40.6		1956-10-02	40.2	
1956-09-05	39.9		1956-08-02	39.6	
1956-06-29	39.0		1956-06-01	38.3	
1956-05-01	37.4		1956-04-01	37.1	
1956-03-01	37.2		1956-01-30	37.5	
1956-01-03	38.4		1955-12-01	38.4	
1955-10-31	37.6		1955-10-01	37.1	
1955-09-01	36.7		1955-08-02	36.2	
1955-07-01	35.2		1955-06-01	34.9	
1955-05-03	34.6		1955-04-05	33.5	
1955-03-01	33.2		1955-02-08	33.5	

49
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000132480**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-332005117111501		
Monloc name:	010S003W03M001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3347547
Longitude:	-117.1883669	Sourcemap scale:	Not Reported

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	320.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

M50
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADW60000034194**

Objectid:	34194
Latitude:	33.3095
Longitude:	-117.2034
Site code:	333095N1172034W001
State well numbe:	10S03W16F001S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000034194

O51
SW
1/2 - 1 Mile
Lower

CA WELLS **CADW60000029639**

Objectid:	29639
Latitude:	33.3106
Longitude:	-117.2056
Site code:	333106N1172056W001
State well numbe:	10S03W16Z005S
Local well name:	''
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	'9-7'
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029639

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

O52
SW
1/2 - 1 Mile
Lower

FED USGS **USGS40000132229**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331838117121701		
Monloc name:	010S003W16Z005S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3105887
Longitude:	-117.2055897	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	213.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1930-01-16	28.4		1929-09-25	28.4	

M53
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000132199**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331832117120401		
Monloc name:	010S003W16F005S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3089221
Longitude:	-117.2019785	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	190.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 3

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1966-08-02	30.40		1966-08-01	30.00	
1958-01-06	44.8				

M54
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000132211**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331834117121001		
Monloc name:	010S003W16F011S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3094776
Longitude:	-117.2036452	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	190.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	59
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 110

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1973-03-22	3.17		1972-09-13	6.03	
1972-04-26	4.53		1966-08-01	30.00	
1965-04-15	32.8		1964-10-30	40.3	
1964-04-17	32.9		1963-11-11	37.9	
1962-05-29	35.3		1962-05-01	32.4	
1962-03-30	29.9		1962-03-02	28.9	
1962-02-02	31.8		1962-01-03	33.2	
1961-12-01	37.3		1961-11-02	40.1	
1961-09-29	40.1		1961-09-01	39.4	
1961-08-01	37.9		1961-06-30	37.5	
1961-06-02	36.4		1961-05-01	33.8	
1961-03-29	30.8		1961-03-01	28.5	
1961-02-01	29.7		1960-12-29	33.8	
1960-11-30	34.7		1960-10-31	41.6	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1960-09-30	41.8		1960-09-01	41.1	
1960-08-01	40.0		1960-06-29	37.9	
1960-06-01	34.5		1960-05-02	32.3	
1960-03-31	29.8		1960-03-02	28.9	
1960-01-29	32.0		1959-12-30	36.1	
1959-11-30	40.1		1959-10-28	40.7	
1959-09-29	39.9		1959-08-31	37.2	
1959-07-28	37.2		1959-07-01	35.8	
1959-05-29	33.8		1959-04-29	27.8	
1959-03-30	28.9		1959-03-02	30.8	
1958-10-01	42.0		1958-09-01	42.5	
1958-08-01	40.8		1958-07-01	39.0	
1958-06-02	36.0		1958-05-01	31.5	
1958-04-09	34.0		1958-02-28	41.0	
1958-02-01	45.7		1958-01-04	45.0	
1957-12-31	51.0		1957-12-02	51.4	
1957-11-01	51.6		1957-10-01	53.4	
1957-08-28	52.6				
Note: A nearby site that taps the same aquifer was being pumped.					
1957-07-31	50.90		1957-06-28	47.67	
1957-06-01	39.85		1957-05-01	37.80	
1957-03-28	35.48		1957-02-28	30.85	
1957-01-31	31.50				
1957-01-02	48.11				
Note: A nearby site that taps the same aquifer was being pumped.					
1956-12-04	49.17				
Note: A nearby site that taps the same aquifer was being pumped.					
1956-11-07	49.31		1956-10-02	49.44	
1956-09-05	48.92		1956-08-02	48.60	
1956-06-29	48.32		1956-06-01	46.88	
1956-05-01	42.10				
Note: A nearby site that taps the same aquifer was being pumped.					
1956-04-01	44.69				
Note: A nearby site that taps the same aquifer was being pumped.					
1956-03-01	38.35		1956-01-30	42.89	
1956-01-03	44.99				
Note: A nearby site that taps the same aquifer was being pumped.					
1955-12-01	44.87				
Note: A nearby site that taps the same aquifer was being pumped.					
1955-10-31	47.40				
Note: A nearby site that taps the same aquifer was being pumped.					
1955-10-01	48.05				
Note: A nearby site that taps the same aquifer was being pumped.					
1955-09-01	47.86				
1955-08-02	47.02				
Note: A nearby site that taps the same aquifer was being pumped.					
1955-07-01	46.69				
Note: A nearby site that taps the same aquifer was being pumped.					
1955-06-01	43.40				
Note: A nearby site that taps the same aquifer was being pumped.					
1955-05-03	40.45				
1955-04-05	40.15				
Note: A nearby site that taps the same aquifer was being pumped.					
1955-03-01	35.00		1955-02-03	36.8	
1955-01-07	41.43				
Note: A nearby site that taps the same aquifer was being pumped.					

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1954-12-06	42.46				
Note: A nearby site that taps the same aquifer was being pumped.					
1954-11-04	44.56				
Note: A nearby site that taps the same aquifer was being pumped.					
1954-09-28	43.3				
Note: A nearby site that taps the same aquifer was being pumped.					
1954-08-31	42.7				
Note: A nearby site that taps the same aquifer was being pumped.					
1954-08-03	41.4				
Note: A nearby site that taps the same aquifer was being pumped.					
1954-07-01	43.6				
Note: A nearby site that taps the same aquifer was being pumped.					
1954-06-04	39.72		1954-05-06	35.62	
1954-04-02	31.49		1954-02-03	36.98	
1954-01-14	41.04				
1953-12-17	44.02				
Note: A nearby site that taps the same aquifer was being pumped.					
1953-11-03	44.97				
Note: A nearby site that taps the same aquifer was being pumped.					
1953-09-03	41.46				
Note: A nearby site that taps the same aquifer was being pumped.					
1953-08-03	38.76				
Note: A nearby site that taps the same aquifer was being pumped.					

N55
SSW
1/2 - 1 Mile
Lower

CA WELLS **CADW60000029470**

Objectid:	29470
Latitude:	33.31
Longitude:	-117.2048
Site code:	333100N1172048W001
State well numbe:	10S03W16F010S
Local well name:	’’
Well use id:	6
Well use descrip:	Unknown
County id:	37
County name:	San Diego
Basin code:	’9-7’
Basin desc:	San Luis Rey Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000029470

M56
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS40000132200**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-331832117120701		
Monloc name:	010S003W16F006S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.3089221
Longitude:	-117.2028118	Sourcemap scale:	Not Reported
Horiz Acc measure:	Unknown	Horiz Acc measure units:	Unknown
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	189.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	80
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 3

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1966-08-02	28.69		1966-08-01	29.00	
1958-01-06	43.5				

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92028	59	4

Federal EPA Radon Zone for SAN DIEGO County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 92028

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.650 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

APPENDIX G
QUALIFICATIONS OF THE ENVIRONMENTAL ASSESSOR

Resume

Jerome K. Summerlin, C.E.G., C.Hg., R.E.A. II

Principal

EDUCATION:

B.S. Geology, California State University, Chico, 1987

Professional Certificate, Hazardous Materials Management, University of California, Santa Barbara, 1991

Professional Certificate, Site Assessment and Remediation, University of California, Davis, 1993

QUALIFICATIONS:

Registered Geologist, California

Certified Engineering Geologist, California

Certified Hydrogeologist, California

Registered Geologist, Arizona

Registered Geologist, Oregon

Professional Geologist, Wyoming

Registered Environmental Assessor II, California

Certified Environmental Manager, Nevada

General Engineering A Contractors License, California

EXPERIENCE:

Mr. Summerlin is the President of Padre Associates, Inc., and is also responsible for the firm's geoenvironmental practice (soil and groundwater assessment and remediation). Mr. Summerlin has been responsible for and participated in a variety of geotechnical, geologic, hydrogeologic, and geoenvironmental projects throughout California, Nevada, Utah, Alaska, Wyoming, Texas, Arizona, North Carolina, and Hawaii. He has managed environmental assessment and remediation projects, which have included preliminary site assessment (Phase I), site assessment (Phase II), remedial action design and planning/permitting, implementation of remedial action programs (Phase III), and verification monitoring upon completion of remedial actions (Phase IV). His training and experience includes a firm understanding of environmental laws and regulations, sample collection, analytical procedures and protocols, site safety procedures, quality assurance/quality control requirements, remedial action feasibility analyses, and design of remedial systems. Geologic studies pertaining to engineering geology include field mapping, subsurface drill hole logging and geotechnical soil sample collection, trench logging for slope stability and structural investigations, and engineering slope stability analyses. His hydrologic experience includes groundwater modeling and aquifer testing.

Mr. Summerlin has extensive field experience with a variety of subsurface exploration tools including air/mud rotary drill rigs, sonic drilling rigs, bucket-auger drill rigs, hollow-stem auger drill rigs, direct push / Geoprobe drill rigs, and cone penetrometer rigs. He also has experience with portable gas

chromatographs, photoionization detectors, flame ionization detectors, and soil vapor extraction testing measurement equipment.

Mr. Summerlin is currently managing environmental projects with an emphasis on petroleum-related assessment and remedial action programs. He is the Responsible Managing Employee for the firm's State of California Contractors License, General Engineering A.

Mr. Summerlin has completed the following projects:

United States General Services Administration, Tucson and Phoenix, Arizona. Conducted Phase I and Phase II environmental site assessment programs at potential redevelopment sites, which has historically contained numerous facilities that utilized hazardous substances. The Phase II assessment program included assessment of soil and ground water conditions, and recommenda¬tions for remedial actions.

Chevron U.S.A., Inc., Central and Southern California. Conducted Phase I and Phase II environmental site assessment programs at oil and gas production leases and processing facilities. Projects have included identification of soil and ground water conditions, and development of remedial action programs.

Hyatt Hotels and Resorts, California, Nevada, and Hawaii. Conducted underground storage tank upgrade projects throughout the western U.S. and Hawaii. Projects have included assessment and remediation of product releases, and the replacement of tanks at several resort properties.

Chevron Environmental Management Company. Has completed / managed the completion of more than 40 soil and groundwater assessment and remediation projects located in the Ventura Oil Field, Cat Canyon Oil Field, and Santa Maria Valley Oil Field.

TRAINING AND CERTIFICATIONS:

Hazardous Substances Removal and Remedial Actions Certification, California

California Division of Occupational Safety and Health (DOSH), 40-Hour Health and Safety Training

DOSH, Annual Health and Safety Training Refresher Course

American Red Cross CPR and First Aid Training

PROFESSIONAL AFFILIATIONS:

Groundwater Resources Association of California

National Ground Water Association

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

Resume

Alan J. Klein, R.E.P.A., C.P.E.S.C., C.E.M.

Senior Environmental Scientist

EDUCATION:

B.A. Environmental Studies, California State University, Sonoma, 1985

Professional Certificate, Hazardous Materials Management, University of California, Santa Barbara, 1992

QUALIFICATIONS:

Registered Environmental Property Assessor (REPA) – National Registry of Environmental Professionals (NREP).
Certified Professional in Erosion and Sediment Control (CPESC) - EnviroCert.
California Qualified SWPPP Developer (QSD) and SWPPP Practitioner (QSP).
Certified Environmental Manager, Nevada
Registered Environmental Assessor II, California (2000-2012)
California Division of Occupational Safety and Health (DOSH), 40-Hour Health and Safety Training, and DOSH, Supervisor's Training
DOSH, Annual Health and Safety Training Refresher Course
American Red Cross, Standard First Aid Certificate
American Red Cross, CPR/AED –Adult Certificate

EXPERIENCE:

Mr. Klein has over 20 years of professional experience performing Phase I environmental site assessments (ESAs); soil and groundwater assessments; soil and groundwater remediation projects; preliminary endangerment assessments (PEAs), removal actions; risk assessments, underground storage tanks (USTs) removal projects; National Pollutant Discharge Elimination System (NPDES) permitting; and Storm Water Pollution Prevention Plans (SWPPPs). His responsibilities include specification of project scope, regulatory agency negotiation and compliance, proposal and contract preparation, field investigation, documentation, and reporting.

Mr. Klein has completed a wide range of environmental projects including the following:

- *California Public Schools* – Performed over 75 Phase I Environmental Assessments (ESAs); Preliminary Endangerment Assessments (PEAs); Removal Actions (RA) and Geological and Environmental Hazards Evaluations for new and expanding school sites as required by California Code of Regulations, Title 5; Assembly Bill 2644 and AB 972. Services include assessment for pesticides from agricultural activities; soil gas surveys; naturally occurring asbestos (NOA); lead in soil from lead based-paint (LBP) and polychlorinated biphenyls (PCBs) from electrical transformers. All work is required and performed under the oversight of the Department of Toxic Substances Control (DTSC) and the California

Department of Education (CDE).

- *Stanislaus County Office of Education, Removal Action, Patterson, CA (2011)* – Padre successfully completed the removal of approximately 511 cubic yards of soil impacted with pesticides from former agricultural use for a proposed school site. Padre prepared the removal action workplan (RAW), which included an excavation plan, dust control plan, stormwater management plan, and site restoration plan. The results of the removal action were documented in the removal action completion report (RACR) prepared by Padre.

- *City of Ceres, North Richland Neighborhood Park, NPDES General Permit (2010)* – Padre prepared the National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharges for the City of Ceres, North Richland Neighborhood Park and Storm Drainage Outfall Project. The Storm Water Pollution Prevention Plan (SWPPP) was written to comply with the California State Water Resources Control Board (SWRCB) Water Quality Order No. 2009-0009-DWQ, National Pollutant Discharge Elimination System (NPDES), General Permit No. CAS000002 for discharges of storm water runoff associated with construction activity. The General Permit covers the development and implementation of a SWPPP, which specifies best management practices (BMPs) that will minimize construction pollutants from contacting storm water and inhibit sediment from moving offsite into receiving waters of the State. The General Permit also covers the reduction of non-storm water discharges to storm sewer systems and other waters of the nation. Specifically, this SWPPP addresses construction activities associated with construction of a neighborhood park and storm drainage outfall project, located at the southwest intersection of River Road and Peter John Way, Ceres, Stanislaus County, California.

- *Former Caesars Tahoe Hotel and Casino, Stateline, Nevada (2003)* – Mr. Klein is the Certified Environmental Manager (CEM) for this facility, which is regulated under the Nevada Department Environmental Protection (NDEP). Padre prepared and implemented the erosion control plan associated with the Tahoe Regional Planning Agency (TRPA) underground tank removal permit, for the removal of a 10,000-gallon underground storage tank (UST) at the Project Site. The erosion control plan included construction/grading conditions and temporary BMPs. Pre-construction activities were inspected and approved by the TRPA.

- Sportsmen Yacht Club, Dredging Operations, Antioch, CA (2005) – Padre prepared the Monitoring and Reporting Program (MRP) No. R5-2003-0121 for the Sportsmen Yacht Club, located at 3301 Wilbur

Avenue, Antioch, Contra Costa County, California (Project Site). The Sportsmen Yacht Club Marina is situated west of the Antioch Bridge on the south shore of the San Joaquin River. The marina is located within the Sacramento-San Joaquin Delta, Hydrologic Unit No. 544.0. The dredging operations consisted of the use of a suction dredge that discharged dredged material to a detention basin located approximately 180 feet south of the marina. The dredger operated at an approximate pumping rate of 2,000-gallons per minute (gpm). The detention basin has a calculated holding capacity of approximately 9,780 cubic-yards or 1,980,450-gallons. The dredged material consisted of approximately 25 to 40% solids. Dredge operation monitoring consisted of the monitoring of harbor water at two locations identified as Stations R-1 and R-2. Station R-1 was located within 300 feet up-current from the dredge operation, with up-current representing a location between the dredge suction head and the entrance to the harbor. Station R-2 was located approximately 300 feet down-current of the dredge suction head, with down-current representing a location between the dredge suction head and the end of the harbor (boat ramp). The monitoring of harbor water at the locations of Station R-1 and R-2 consisted of the use of hand held meters to measure the following parameters: pH (pH units 0-14); temperature (°C); dissolved oxygen (mg/l); and turbidity (NTU).

- *Spanish Mine, Upper Spanish Mine, Nevada County, California (2002)*. Assisted with an ecological risk assessment and National Pollutant Discharge Elimination System (NPDES) permit for an inactive mine site. The mine site consisted of approximately 4,000-acres of patented and unpatented mining claims. Gold was first discovered at the site in 1883 and was mined sporadically until the war shut the operations down in 1939. An open pit barite mine was operated from the 1950's until late 1988. Between 1984 and 1990, lease options were given on the property for gold exploration. Ecological risks to aquatic biota downstream of the mine site were evaluated. The assessment consisted of six stream site locations chosen to be scientifically defendable for determining injury to aquatic resources. The sampling consisted of a comprehensive evaluation of potential metals of concern in surface waters, sediments, and benthic macro invertebrates. For the submittal of the NPDES permit application, a file search with the United States Geologic Survey (U.S.G.S.), and the California Division of Mines to review information relative to known mine workings and current conditions.

- *North Valley Plaza Associates, Soil/Groundwater Assessment and Remediation, Chico, California*. Project manager for the assessment and remediation of PCE and its breakdown products discharged to the subsurface by a former dry cleaning facility in Chico, CA. The Department

of Toxic Substance Control identified the presence of chlorinated hydrocarbons in a nearby municipal drinking water supply well. Developed RI/FS workplan, Quality Assurance Project Plan (QAPP) and Public Participation Plan (PPP). Performed extensive subsurface investigation to define the lateral and vertical extent of chlorinated hydrocarbons in soil and groundwater. The subsurface investigation included conducting a soil vapor survey, sewer line survey, soil sampling, depth-discrete groundwater sampling; and installation of multiple groundwater monitoring wells in both shallow and deep groundwater zones. Design, installation, and operation of a soil vapor extraction system.

- *United Airlines, UST Removal and Remediation, Port of Oakland, California*. Environmental project manager providing permitting, remedial construction oversight and soil and groundwater sampling during the removal of two 10K underground storage tanks (USTs)(diesel/gasoline) and the abandonment inplace of two 8.5K (aero-foam) USTs. Remediation activities included overexcavation of 750-cubic yards of petroleum impacted soil and 12,000 gallons of groundwater was pumped from the excavation pit. Waste soil and groundwater were characterized and disposed of at the proper recycling/disposal facility.

- *Natural Gas Field, Phase I & II Environmental Site Assessment, Orland, California*. Project Manager. Retained by the owners of a 6,000 acre ranch to investigate the environmental condition of their property, regarding the production of natural gas by several individual gas companies. Identified numerous environmental concerns associated with the operating practices of these companies. Environmental concerns included: unauthorized releases of waste oil and production water to the subsurface, noxious odors emitted from the operation of glycol dehydrator, user permit violations, and deserted wells. Provided oversight of investigation and remediation of contaminated soil from leaking gas compressors and wastewater holding tanks.

PROFESSIONAL AFFILIATIONS:

Association of Environmental & Engineering Geologists
California Storm Water Quality Association
International Erosion Control Association
Coalition for Adequate School Housing
Groundwater Resources Association of California

Resume

Matt Miller

Staff Geologist

EDUCATION: B.S. Geology with minor in Education, University of California in Davis, California, 2013

QUALIFICATIONS:

Geologist In Training, 2014

Nuclear Density Gauge Certified

OSHA 40 Hour HAZWOPER Certified

Adult First Aid/CPR/AED Certified

Completed Passport Safety Training

Completed the SJVBU ABC and OPL Trainings

Completed Managing Safe Work Training

Certified Motorboat Operator SAF-4102 in accordance with the U.S. Department of the Interior and the National Association of State Boating Law Administrators

EXPERIENCE: Mr. Miller joined Padre Associates, Inc. in 2013. As a Staff Geologist, his professional experience includes geoenvironmental assessment, monitoring, and remediation. Prior to joining Padre, Mr. Miller was contracted to assist the USGS with a geomagnetic survey of Mono Lake, including Paoha Island.

Mr. Miller's Professional project experience includes:

- **California Public Schools** – Performed or contributed to over a dozen Phase I Environmental Assessments (ESA), Phase II ESAs, and/or Preliminary Endangerment Assessments (PEAs) for new school sites as required by California Code of Regulations, Title 5; Assembly Bill 2644 and AB 972. Clients include Alisal Union School District, Bayshore Elementary School District, Cupertino Union School District, Los Banos Unified School District, Milpitas Unified School District, Oakley Union Elementary School District, Santa Maria Joint Union High School District, and Visalia Unified School District.
- **CEMC Soil Vapor Extraction Project, School Canyon Seep Remediation – Ventura, Ca.** Mr. Miller has been involved with the operation, maintenance, and sampling of the site SVE unit. Responsible for reviewing the site's permitting and operations and taking action to insure compliance with Padre and CEMC policies
- **Moralez Semi-Annual Groundwater Monitoring and Sampling Project – Santa Barbara, California.** Mr. Miller has performed groundwater monitoring activities at the property. Prepared reportsdocumenting those activities and their findings for presentation to the client and regulatory agencies.

Appendix O

Greenhouse Gas Emissions Modeling

ESA

GHG Appendix Assumptions and Calculations

Proposed Project Assumptions
Proposed Project Calculation Summary
Proposed Project CalEEMod Output

Proposed Project Assumptions

Bonsall New High School
Phase 1 Construction Assumptions

CalEEMod Inputs (Non-Default information only)

Project Location	
County	San Diego
Air District	SDAPCD
Climate Zone	13
Operational Year	2021
Utility Provider	SDG&E

Land Use		Sq Ft	KSF	(Units/Students)	Acres	CalEEMod Land Use Type
Educational						
	High School	46,270	46.27	500	0.60	High School
Parking						0
	Street				1.80	Other Asphalt Surfaces
	Parking Lot				1.70	Parking Lot
	Landscape/Hardscape				9.00	Other Non-Asphalt Surfaces

Construction Schedule

Phases (if applicable)	CalEEMod Default (# Days)	Project Revised (# Days)	Start (month/date/year)	Finish (month/date/year)
Grading*	110	110	9/1/2019	2/1/2020
Building Construction	300	239	2/1/2020	12/31/2020
Architectural Coatings	20	20	12/4/2020	12/31/2020
Paving	20	20	2/1/2020	3/1/2020
Construction days**	410	349		

* Phase 1 and Phase 2 area will be graded prior to construction of Phase 1 buildings.
** Project days are based on construction schedule provided by Applicant. Architectural coating and Paving are assumed to overlap with building construction activities and therefore are not used in determining the number of construction days per phase. Default days are kept for Architectural Coating activities and Paving Activities. There is no demolition as a part of this project and therefore demolition is not included in project activities.

All remaining construction information uses Default settings, with the exception of those listed below:

Soils are anticipated to be balanced onsite
Anticipate Tier 3 construction fleet
Water exposed areas 3 times daily.
Maximum VOC content of 150g/L for architectural coating materials

Bonsall New High School
Phase 2 Construction Assumptions

CalEEMod Inputs (Non-Default information only)

Project Location	
County	San Diego
Air District	SDAPCD
Climate Zone	13
Operational Year	2025
Utility Provider	SDG&E

Land Use		Sq Ft	KSF	(Units/Students)	Acres	CalEEMod Land Use Type
Educational						
	High School	104,230	104.23	1,000	2.60	High School
Parking						0
	Street				1.00	Other Asphalt Surfaces
	Parking Lot				1.40	Parking Lot
	Landscape/Hardscape				21.50	Other Non-Asphalt Surfaces

Construction Schedule

Phases* (if applicable)	CalEEMod Default (# Days)	Project Revised (# Days)	Start (month/date/year)	Finish (month/date/year)
Building Construction	440	283	1/1/2023	1/31/2024
Architectural Coatings	35	35	12/14/2023	1/31/2024
Paving	35	35	1/1/2023	2/18/2023
Construction days**	440	283		

* Phase 1 and Phase 2 area will be graded prior to construction of Phase 1 buildings.
** Project days are based on construction schedule provided by Applicant. Architectural coating and Paving are assumed to overlap with building construction activities and therefore are not used in determining the number of construction days per phase. Default days are kept for Architectural Coating activities and Paving Activities. There is no demolition as a part of this project and therefore demolition is not included in project activities.

All remaining construction information uses Default settings, with the exception of those listed below:

Anticipate Tier 3 construction fleet
Total disturbed site area 39.5 acres. Total Phase 1 area is 13.1 AC. Total Phase 2 area is 11.8 AC.
Remaining 14.6 AC of landscaping assumed for Phase 2.
Water exposed areas 3 times daily.
Maximum VOC content of 150g/L for architectural coating materials

Bonsall New High School
Phase 1 Assumptions

CalEEMod Inputs (Non-Default information only)

			2010[1]	2020[2]	2030
Project Location		CO intensity	720.49	493.5	450.3
County	San Diego	% renewable	11.90%	45.20%	50.00%
Air District	SDAPCD				
Climate Zone	13				
Operational Year	2021				
Utility Provider	SDG&E				

[1] CalEEMod CO intensity based on 2009 data. According to SDG&E, 11.9% of SDG&E electricity came from renewables. https://www.sdge.com/state-government-affairs/renewable-portfolio-standard

[2] http://www.cpuc.ca.gov/renewables/

Land Use	**Sq Ft**	**KSF**	**Units/Students**	**Acres**	**CalEEMod Land Use Type**
Educational					
High School	46,270	46.27	500	0.60	High School
Parking					
Street				1.80	Other Asphalt Surfaces
Parking Lot				1.70	Parking Lot
Landscape/Hardscape				9.00	Other Non-Asphalt Surfaces

Service Population	20	employees
	500	students
	520	**Total**

Note: The square footage used in the Air Quality and GHG modeling is the gross square footaage to accurately account for the amount of emissions generated by the operation of project land uses. Acreage is the site area of the proposed land uses (e.g., building footprint and not total square footage for multi-storied buildings).

Transportation:

Trip Generation

	Traffic Study*	**Project**			
	trips	**Weekday**	**Saturday**	**Sunday**	
High School	650	1.30	0.00	0.00	per student

*Based on Traffic Study Information as provided.

Bonsall New High School
Phase 1 Assumptions

Electric	***2013***	***2016***	***2013***	***2016***
	Title-24		Lighting	
High School	1.6	1.52	2.61	2.4795
Parking Lot	--		0.88	0.836

Natural Gas	***2013***	***2016***
	Title-24	
High School	5.46	5.187

*2013 Title 24 is more the current requirement and is 25% more restrictive than the 2008 Title 24. 2016 Title 24 is the current requirement and is more restrictive than the 2013 Title 24 standard (which is the CalEEmod default). It is conservatively estimated to be 5% more restrictive than 2013 Title 24 requirements for Electric and Natural Gas and 5% for lighting. These requirements are more restrictive than the ASHRE requirements. Additional reduction based on CO2e reductions assumed for 2016 compared to those assumed for 2013.

Lighting has a 10 percent reduction from 2008 based on 2013 Title 24. Additional 5% reduction assumed for increase to 2016 Title 24 requirements.

Water Use

	Indoor		Outdoor	
	Default	Reduced	Default	Reduced
High School	2,202,480.00	1,761,984.00	5,663,520.00	5,663,520.00

Removal of Septic

Septic	Aerobic	Lagoons
10.33	87.46	2.21
	0.98	0.02
	10.08	0.25
0.00	97.54	2.46

Title 24 2016 20% reduction for indoor water

Outdoor water based on CalEEMod default and does not consider artificial turf or drought-tolerant landscaping

Solid Waste Generation:	**Tons/year**	
	CalEEMod	**Reduced[2]**
High School	91.25	45.63

[2] According to the SD County General Plan, the County is in compliance with AB 939, which requires diversion of 50% solid waste away from landfills.

All remaining operational information uses Default settings, with the exception of those listed below:

Low flow bathroom and ktichen fixtures will be installed.

Water-efficient irrigation systems to be installed.

Bonsall New High School
Buildout Assumptions

CalEEMod Inputs (Non-Default information only)

			2010[1]	2020[2]	2030
Project Location		CO intensity	720.49	493.5	450.3
County	San Diego	% renewable	11.90%	45.20%	50.00%
Air District	SDAPCD				
Climate Zone	13				
Operational Year	2025				
Utility Provider	SDG&E				

[1] CalEEMod CO intensity based on 2009 data. According to SDG&E, 11.9% of SDG&E electricity came from renewables. https://www.sdge.com/state-government-affairs/renewable-portfolio-standard

[2] http://www.cpuc.ca.gov/renewables/

Land Use		**Sq Ft**	**KSF**	**Units/Students**	**Acres**	**CalEEMod Land Use Type**
Educational						
	High School	150,500	150.50	1,500	3.20	High School
Parking						
	Street				2.80	Other Asphalt Surfaces
	Parking Lot				3.10	Parking Lot
	Landscape/Hardscape				30.50	Other Non-Asphalt Surfaces

Service Population	60	employees
	1,500	students
	1,560	**Total**

Note: The square footage used in the Air Quality and GHG modeling is the gross square footaage to accurately account for the amount of emissions generated by the operation of project land uses. Acreage is the site area of the proposed land uses (e.g., building footprint and not total square footage for multi-storied buildings).

Transportation:

Trip Generation

	Traffic Study*	**Project**			
	trips	**Weekday**	**Saturday**	**Sunday**	
High School	1,950	1.30	0.00	0.00	per student

*Based on Traffic Study Information as provided.

Energy Use

Electric	***2013***	***2016***	***2013***	***2016***
	Title-24		Lighting	
High School	1.6	1.52	2.61	2.4795
Parking Lot	--		0.88	0.836

Natural Gas	***2013***	***2016***
	Title-24	
High School	5.46	5.187

*2013 Title 24 is more the current requirement and is 25% more restrictive than the 2008 Title 24. 2016 Title 24 (which will be in effect by the time the project is built) is conservatively estimated to be5% more restrictive than 2013 Title 24 requirements for Electric and Natural Gas and 5% for lighting. These requirements are more restrictive than the ASHRE requirements. Additional reduction based on CO2e reductions assumed for 2016 compared to those assumed for 2013.

Lighting has a 10 percent reduction from 2008 based on 2013 Title 24. Additional 5% reduction assumed for increase to 2016 Title 24 requirements.

Water Use

	Indoor		Outdoor	
	Default	Reduced	Default	Reduced
High School	6,607,440.00	5,285,952.00	16,990,560.00	16,990,560.00

Removal of Septic		
Septic	Aerobic	Lagoons
10.33	87.46	2.21
	0.98	0.02
	10.08	0.25
0.00	97.54	2.46

Title 24 2016 20% reduction for indoor water

Solid Waste Generation:	**Tons/year**	
	CalEEMod	**Reduced[2]**
High School	278.75	139.38

[2] According to the SD County General Plan, the County is in compliance with AB 939, which requires diversion of 50% solid waste away from landfills.

All remaining operational information uses Default settings, with the exception of those listed below:

Low flow bathroom and ktichen fixtures will be installed.

Water-efficient irrigation systems to be installed.

TABLE 7
TRIP GENERATION FORECASTS FOR BONSALL HIGH SCHOOL

	Land Use	Students	Trips per Unit							
			Daily	AM Peak Hour			PM Peak Hour			
				In	Out	Total	In	Out	Total	trip rate
Phase 1 2021	High School	500	650	90	40	130	25	40	65	1.3
Buildout 2025	High School	1500	1,950	270	120	390	75	120	195	1.3

Proposed Project Calculation Summary

Bonsall New High School
GHG CalEEMod Results Compiled
Build Out 2025

Unmitigated Construction

		CO_2	CH_4	CH_4 (CO_2e)	CO_2e
			MT/yr		
Phase 1	2019	249	0	2	251
	2020	889	0	3	892
Phase 2	2023	1,366	0	3	1,370
	2024	125	0	0	125
	Total Project:				2,638
	Amortized Emissions:				88

*Notes:
Amortized emissions are determined by dividing total project emissions by 30 years, the anticipated lifetime of a project.

Bonsall New High School
GHG CalEEMod Results Compiled
Build Out 2025

Unmitigated Operational

	CO_2	CH_4	CH_4 (CO_2e)	N_2O	N_2O (CO_2e)	CO_2e
	MT/year Annual Proposed Project Build Out					
Area	0	7.00E-05	0	0.00E+00	0	0
Energy	245	1.26E-02	0	3.27E-03	1	247
Mobile	1,469	0.0729	2	0	0	1,471
Waste	28	1.67	42	0	0	70
Water	53	0.046	1	3.89E-03	1	56
Total Project						1,844
Amoritized Construction						88
Total Project Annual						**1,932**
Threshold						3,000
Exceed Threshold?						**No**
Significant?						**No**

Mitigation: None Required

Proposed Project CalEEMod Output

Bonsall New High School Phase 1 Construction & Operation

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	500.00	Student	0.60	46,270.00	0
Other Asphalt Surfaces	1.80	Acre	1.80	78,408.00	0
Other Non-Asphalt Surfaces	9.00	Acre	9.00	392,040.00	0
Parking Lot	1.70	Acre	1.70	74,052.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	493.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - See Assumptions

Construction Phase - See Assumptions

Grading -

Architectural Coating - See Assumptions

Vehicle Trips - See Assumptions

Energy Use - See Assumptions

Water And Wastewater - See Assumptions

Solid Waste - See Assumptions

Construction Off-road Equipment Mitigation - See Assumptions

Water Mitigation - See Assumptions

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Parking	250.00	150.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	300.00	239.00
tblConstructionPhase	NumDays	30.00	110.00
tblConstructionPhase	PhaseEndDate	2/25/2021	12/31/2020
tblConstructionPhase	PhaseEndDate	11/29/2019	1/31/2020
tblConstructionPhase	PhaseEndDate	1/28/2021	2/28/2020
tblConstructionPhase	PhaseStartDate	1/29/2021	12/4/2020
tblConstructionPhase	PhaseStartDate	11/30/2019	2/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2021	2/1/2020
tblEnergyUse	LightingElect	2.61	2.48
tblEnergyUse	LightingElect	0.88	0.84
tblEnergyUse	T24E	1.60	1.52
tblEnergyUse	T24NG	5.46	5.19
tblLandUse	BuildingSpaceSquareFeet	66,330.49	46,270.00
tblLandUse	LandUseSquareFeet	66,330.49	46,270.00
tblLandUse	LotAcreage	1.52	0.60
tblProjectCharacteristics	CO2IntensityFactor	720.49	493.5
tblProjectCharacteristics	OperationalYear	2018	2021
tblSolidWaste	SolidWasteGenerationRate	91.25	45.63
tblVehicleTrips	WD_TR	1.71	1.30
tblWater	AerobicPercent	87.46	97.54
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	2.46
tblWater	IndoorWaterUseRate	2,202,480.00	1,761,984.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2096	2.3743	1.4774	2.7700e-003	0.4840	0.1037	0.5877	0.1997	0.0954	0.2951	0.0000	248.8127	248.8127	0.0769	0.0000	250.7344
2020	0.9170	4.4320	3.7134	9.7700e-003	0.7987	0.1753	0.9740	0.2851	0.1643	0.4494	0.0000	889.0703	889.0703	0.1246	0.0000	892.1840
Maximum	**0.9170**	**4.4320**	**3.7134**	**9.7700e-003**	**0.7987**	**0.1753**	**0.9740**	**0.2851**	**0.1643**	**0.4494**	**0.0000**	**889.0703**	**889.0703**	**0.1246**	**0.0000**	**892.1840**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0697	1.3067	1.6229	2.7700e-003	0.1930	0.0566	0.2496	0.0790	0.0566	0.1356	0.0000	248.8124	248.8124	0.0769	0.0000	250.7341
2020	0.7008	3.5758	3.9171	9.7700e-003	0.5077	0.1382	0.6459	0.1644	0.1378	0.3021	0.0000	889.0699	889.0699	0.1246	0.0000	892.1836
Maximum	**0.7008**	**3.5758**	**3.9171**	**9.7700e-003**	**0.5077**	**0.1382**	**0.6459**	**0.1644**	**0.1378**	**0.3021**	**0.0000**	**889.0699**	**889.0699**	**0.1246**	**0.0000**	**892.1836**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**31.61**	**28.27**	**-6.73**	**0.00**	**45.37**	**30.20**	**42.66**	**49.79**	**25.19**	**41.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2019**	**11-30-2019**	1.9306	1.0285
2	**12-1-2019**	**2-29-2020**	1.7798	1.1142
3	**3-1-2020**	**5-31-2020**	1.1236	0.9132
4	**6-1-2020**	**8-31-2020**	1.1214	0.9109
5	**9-1-2020**	**9-30-2020**	0.3657	0.2970
		Highest	1.9306	1.1142

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2889	4.0000e-005	4.7300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.1600e-003	9.1600e-003	2.0000e-005	0.0000	9.7700e-003
Energy	1.4100e-003	0.0129	0.0108	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	81.5757	81.5757	4.2400e-003	1.0800e-003	82.0030
Mobile	0.1548	0.6790	1.8205	6.0800e-003	0.5187	5.1900e-003	0.5239	0.1389	4.8500e-003	0.1438	0.0000	560.2204	560.2204	0.0301	0.0000	560.9730
Waste						0.0000	0.0000		0.0000	0.0000	9.2625	0.0000	9.2625	0.5474	0.0000	22.9474
Water						0.0000	0.0000		0.0000	0.0000	0.6234	19.2206	19.8440	0.0190	1.5900e-003	20.7933
Total	**0.4451**	**0.6919**	**1.8360**	**6.1600e-003**	**0.5187**	**6.1900e-003**	**0.5249**	**0.1389**	**5.8500e-003**	**0.1448**	**9.8859**	**661.0258**	**670.9117**	**0.6008**	**2.6700e-003**	**686.7265**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2889	4.0000e-005	4.7300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.1600e-003	9.1600e-003	2.0000e-005	0.0000	9.7700e-003
Energy	1.4100e-003	0.0129	0.0108	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	81.5757	81.5757	4.2400e-003	1.0800e-003	82.0030
Mobile	0.1548	0.6790	1.8205	6.0800e-003	0.5187	5.1900e-003	0.5239	0.1389	4.8500e-003	0.1438	0.0000	560.2204	560.2204	0.0301	0.0000	560.9730
Waste						0.0000	0.0000		0.0000	0.0000	9.2625	0.0000	9.2625	0.5474	0.0000	22.9474
Water						0.0000	0.0000		0.0000	0.0000	0.4987	17.3343	17.8330	0.0153	1.3000e-003	18.6024
Total	**0.4451**	**0.6919**	**1.8360**	**6.1600e-003**	**0.5187**	**6.1900e-003**	**0.5249**	**0.1389**	**5.8500e-003**	**0.1448**	**9.7612**	**659.1395**	**668.9007**	**0.5971**	**2.3800e-003**	**684.5356**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.26**	**0.29**	**0.30**	**0.61**	**10.86**	**0.32**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/1/2019	1/31/2020	5	110	
2	Building Construction	Building Construction	2/1/2020	12/31/2020	5	239	
3	Paving	Paving	2/1/2020	2/28/2020	5	20	
4	Architectural Coating	Architectural Coating	12/4/2020	12/31/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 12.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 69,405; Non-Residential Outdoor: 23,135; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	50.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	248.00	97.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4770	0.0000	0.4770	0.1978	0.0000	0.1978	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2061	2.3716	1.4519	2.7000e-003		0.1037	0.1037		0.0954	0.0954	0.0000	242.3007	242.3007	0.0767	0.0000	244.2173
Total	**0.2061**	**2.3716**	**1.4519**	**2.7000e-003**	**0.4770**	**0.1037**	**0.5807**	**0.1978**	**0.0954**	**0.2932**	**0.0000**	**242.3007**	**242.3007**	**0.0767**	**0.0000**	**244.2173**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4300e-003	2.6300e-003	0.0255	7.0000e-005	6.9800e-003	5.0000e-005	7.0300e-003	1.8500e-003	5.0000e-005	1.9000e-003	0.0000	6.5119	6.5119	2.1000e-004	0.0000	6.5172
Total	**3.4300e-003**	**2.6300e-003**	**0.0255**	**7.0000e-005**	**6.9800e-003**	**5.0000e-005**	**7.0300e-003**	**1.8500e-003**	**5.0000e-005**	**1.9000e-003**	**0.0000**	**6.5119**	**6.5119**	**2.1000e-004**	**0.0000**	**6.5172**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1860	0.0000	0.1860	0.0771	0.0000	0.0771	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0663	1.3041	1.5974	2.7000e-003		0.0565	0.0565		0.0565	0.0565	0.0000	242.3005	242.3005	0.0767	0.0000	244.2170
Total	**0.0663**	**1.3041**	**1.5974**	**2.7000e-003**	**0.1860**	**0.0565**	**0.2426**	**0.0771**	**0.0565**	**0.1337**	**0.0000**	**242.3005**	**242.3005**	**0.0767**	**0.0000**	**244.2170**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4300e-003	2.6300e-003	0.0255	7.0000e-005	6.9800e-003	5.0000e-005	7.0300e-003	1.8500e-003	5.0000e-005	1.9000e-003	0.0000	6.5119	6.5119	2.1000e-004	0.0000	6.5172
Total	**3.4300e-003**	**2.6300e-003**	**0.0255**	**7.0000e-005**	**6.9800e-003**	**5.0000e-005**	**7.0300e-003**	**1.8500e-003**	**5.0000e-005**	**1.9000e-003**	**0.0000**	**6.5119**	**6.5119**	**2.1000e-004**	**0.0000**	**6.5172**

3.2 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4770	0.0000	0.4770	0.1978	0.0000	0.1978	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0512	0.5773	0.3675	7.1000e-004		0.0250	0.0250		0.0230	0.0230	0.0000	62.6569	62.6569	0.0203	0.0000	63.1636
Total	**0.0512**	**0.5773**	**0.3675**	**7.1000e-004**	**0.4770**	**0.0250**	**0.5020**	**0.1978**	**0.0230**	**0.2208**	**0.0000**	**62.6569**	**62.6569**	**0.0203**	**0.0000**	**63.1636**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	6.3000e-004	6.1500e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8600e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6672	1.6672	5.0000e-005	0.0000	1.6685
Total	**8.5000e-004**	**6.3000e-004**	**6.1500e-003**	**2.0000e-005**	**1.8400e-003**	**1.0000e-005**	**1.8600e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.6672**	**1.6672**	**5.0000e-005**	**0.0000**	**1.6685**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1860	0.0000	0.1860	0.0771	0.0000	0.0771	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0175	0.3448	0.4223	7.1000e-004		0.0149	0.0149		0.0149	0.0149	0.0000	62.6569	62.6569	0.0203	0.0000	63.1635
Total	**0.0175**	**0.3448**	**0.4223**	**7.1000e-004**	**0.1860**	**0.0149**	**0.2010**	**0.0771**	**0.0149**	**0.0921**	**0.0000**	**62.6569**	**62.6569**	**0.0203**	**0.0000**	**63.1635**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	6.3000e-004	6.1500e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8600e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6672	1.6672	5.0000e-005	0.0000	1.6685
Total	**8.5000e-004**	**6.3000e-004**	**6.1500e-003**	**2.0000e-005**	**1.8400e-003**	**1.0000e-005**	**1.8600e-003**	**4.9000e-004**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**1.6672**	**1.6672**	**5.0000e-005**	**0.0000**	**1.6685**

3.3 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2533	2.2927	2.0134	3.2200e-003		0.1335	0.1335		0.1255	0.1255	0.0000	276.7739	276.7739	0.0675	0.0000	278.4620
Total	**0.2533**	**2.2927**	**2.0134**	**3.2200e-003**		**0.1335**	**0.1335**		**0.1255**	**0.1255**	**0.0000**	**276.7739**	**276.7739**	**0.0675**	**0.0000**	**278.4620**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0442	1.3213	0.3510	3.1400e-003	0.0769	6.4500e-003	0.0834	0.0222	6.1700e-003	0.0284	0.0000	305.8550	305.8550	0.0234	0.0000	306.4411
Worker	0.1092	0.0809	0.7930	2.3800e-003	0.2377	1.7100e-003	0.2394	0.0632	1.5700e-003	0.0647	0.0000	214.8241	214.8241	6.4500e-003	0.0000	214.9854
Total	**0.1534**	**1.4021**	**1.1441**	**5.5200e-003**	**0.3146**	**8.1600e-003**	**0.3227**	**0.0854**	**7.7400e-003**	**0.0931**	**0.0000**	**520.6791**	**520.6791**	**0.0299**	**0.0000**	**521.4264**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0805	1.7000	2.1359	3.2200e-003		0.1080	0.1080		0.1080	0.1080	0.0000	276.7736	276.7736	0.0675	0.0000	278.4617
Total	**0.0805**	**1.7000**	**2.1359**	**3.2200e-003**		**0.1080**	**0.1080**		**0.1080**	**0.1080**	**0.0000**	**276.7736**	**276.7736**	**0.0675**	**0.0000**	**278.4617**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0442	1.3213	0.3510	3.1400e-003	0.0769	6.4500e-003	0.0834	0.0222	6.1700e-003	0.0284	0.0000	305.8550	305.8550	0.0234	0.0000	306.4411
Worker	0.1092	0.0809	0.7930	2.3800e-003	0.2377	1.7100e-003	0.2394	0.0632	1.5700e-003	0.0647	0.0000	214.8241	214.8241	6.4500e-003	0.0000	214.9854
Total	**0.1534**	**1.4021**	**1.1441**	**5.5200e-003**	**0.3146**	**8.1600e-003**	**0.3227**	**0.0854**	**7.7400e-003**	**0.0931**	**0.0000**	**520.6791**	**520.6791**	**0.0299**	**0.0000**	**521.4264**

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0136	0.1407	0.1465	2.3000e-004		7.5300e-003	7.5300e-003		6.9300e-003	6.9300e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1902
Paving	4.5900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0182**	**0.1407**	**0.1465**	**2.3000e-004**		**7.5300e-003**	**7.5300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1902**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.1000e-004	4.0100e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0873	1.0873	3.0000e-005	0.0000	1.0881
Total	**5.5000e-004**	**4.1000e-004**	**4.0100e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0873**	**1.0873**	**3.0000e-005**	**0.0000**	**1.0881**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.6100e-003	0.1130	0.1730	2.3000e-004		6.0900e-003	6.0900e-003		6.0900e-003	6.0900e-003	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1901
Paving	4.5900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0102**	**0.1130**	**0.1730**	**2.3000e-004**		**6.0900e-003**	**6.0900e-003**		**6.0900e-003**	**6.0900e-003**	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1901**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	4.1000e-004	4.0100e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0873	1.0873	3.0000e-005	0.0000	1.0881
Total	**5.5000e-004**	**4.1000e-004**	**4.0100e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0873**	**1.0873**	**3.0000e-005**	**0.0000**	**1.0881**

3.5 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4353					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4200e-003	0.0168	0.0183	3.0000e-005		1.1100e-003	1.1100e-003		1.1100e-003	1.1100e-003	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	**0.4377**	**0.0168**	**0.0183**	**3.0000e-005**		**1.1100e-003**	**1.1100e-003**		**1.1100e-003**	**1.1100e-003**	**0.0000**	**2.5533**	**2.5533**	**2.0000e-004**	**0.0000**	**2.5582**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8400e-003	1.3600e-003	0.0134	4.0000e-005	4.0100e-003	3.0000e-005	4.0400e-003	1.0700e-003	3.0000e-005	1.0900e-003	0.0000	3.6244	3.6244	1.1000e-004	0.0000	3.6271
Total	**1.8400e-003**	**1.3600e-003**	**0.0134**	**4.0000e-005**	**4.0100e-003**	**3.0000e-005**	**4.0400e-003**	**1.0700e-003**	**3.0000e-005**	**1.0900e-003**	**0.0000**	**3.6244**	**3.6244**	**1.1000e-004**	**0.0000**	**3.6271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4353					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9000e-004	0.0136	0.0183	3.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	**0.4359**	**0.0136**	**0.0183**	**3.0000e-005**		**9.5000e-004**	**9.5000e-004**		**9.5000e-004**	**9.5000e-004**	**0.0000**	**2.5533**	**2.5533**	**2.0000e-004**	**0.0000**	**2.5582**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8400e-003	1.3600e-003	0.0134	4.0000e-005	4.0100e-003	3.0000e-005	4.0400e-003	1.0700e-003	3.0000e-005	1.0900e-003	0.0000	3.6244	3.6244	1.1000e-004	0.0000	3.6271
Total	**1.8400e-003**	**1.3600e-003**	**0.0134**	**4.0000e-005**	**4.0100e-003**	**3.0000e-005**	**4.0400e-003**	**1.0700e-003**	**3.0000e-005**	**1.0900e-003**	**0.0000**	**3.6244**	**3.6244**	**1.1000e-004**	**0.0000**	**3.6271**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1548	0.6790	1.8205	6.0800e-003	0.5187	5.1900e-003	0.5239	0.1389	4.8500e-003	0.1438	0.0000	560.2204	560.2204	0.0301	0.0000	560.9730
Unmitigated	0.1548	0.6790	1.8205	6.0800e-003	0.5187	5.1900e-003	0.5239	0.1389	4.8500e-003	0.1438	0.0000	560.2204	560.2204	0.0301	0.0000	560.9730

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	650.00	305.00	125.00	1,376,405	1,376,405
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	650.00	305.00	125.00	1,376,405	1,376,405

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Other Asphalt Surfaces	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Other Non-Asphalt Surfaces	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193
Parking Lot	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	67.5757	67.5757	3.9700e-003	8.2000e-004	67.9198
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	67.5757	67.5757	3.9700e-003	8.2000e-004	67.9198
NaturalGas Mitigated	1.4100e-003	0.0129	0.0108	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	14.0000	14.0000	2.7000e-004	2.6000e-004	14.0832
NaturalGas Unmitigated	1.4100e-003	0.0129	0.0108	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	14.0000	14.0000	2.7000e-004	2.6000e-004	14.0832

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High School	262351	1.4100e-003	0.0129	0.0108	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	14.0000	14.0000	2.7000e-004	2.6000e-004	14.0832
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.4100e-003**	**0.0129**	**0.0108**	**8.0000e-005**		**9.8000e-004**	**9.8000e-004**		**9.8000e-004**	**9.8000e-004**	**0.0000**	**14.0000**	**14.0000**	**2.7000e-004**	**2.6000e-004**	**14.0832**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High School	262351	1.4100e-003	0.0129	0.0108	8.0000e-005		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	14.0000	14.0000	2.7000e-004	2.6000e-004	14.0832
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.4100e-003**	**0.0129**	**0.0108**	**8.0000e-005**		**9.8000e-004**	**9.8000e-004**		**9.8000e-004**	**9.8000e-004**	**0.0000**	**14.0000**	**14.0000**	**2.7000e-004**	**2.6000e-004**	**14.0832**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	239679	53.6515	3.1500e-003	6.5000e-004	53.9247
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	62203.7	13.9242	8.2000e-004	1.7000e-004	13.9951
Total		**67.5757**	**3.9700e-003**	**8.2000e-004**	**67.9198**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	239679	53.6515	3.1500e-003	6.5000e-004	53.9247
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	62203.7	13.9242	8.2000e-004	1.7000e-004	13.9951
Total		**67.5757**	**3.9700e-003**	**8.2000e-004**	**67.9198**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2889	4.0000e-005	4.7300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.1600e-003	9.1600e-003	2.0000e-005	0.0000	9.7700e-003
Unmitigated	0.2889	4.0000e-005	4.7300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.1600e-003	9.1600e-003	2.0000e-005	0.0000	9.7700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0725					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2159					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.4000e-004	4.0000e-005	4.7300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.1600e-003	9.1600e-003	2.0000e-005	0.0000	9.7700e-003
Total	**0.2889**	**4.0000e-005**	**4.7300e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.1600e-003**	**9.1600e-003**	**2.0000e-005**	**0.0000**	**9.7700e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0725					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2159					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.4000e-004	4.0000e-005	4.7300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.1600e-003	9.1600e-003	2.0000e-005	0.0000	9.7700e-003
Total	**0.2889**	**4.0000e-005**	**4.7300e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**9.1600e-003**	**9.1600e-003**	**2.0000e-005**	**0.0000**	**9.7700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	17.8330	0.0153	1.3000e-003	18.6024
Unmitigated	19.8440	0.0190	1.5900e-003	20.7933

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	1.76198 / 5.66352	19.8440	0.0190	1.5900e-003	20.7933
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**19.8440**	**0.0190**	**1.5900e-003**	**20.7933**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	1.40959 / 5.31805	17.8330	0.0153	1.3000e-003	18.6024
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**17.8330**	**0.0153**	**1.3000e-003**	**18.6024**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	9.2625	0.5474	0.0000	22.9474
Unmitigated	9.2625	0.5474	0.0000	22.9474

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	45.63	9.2625	0.5474	0.0000	22.9474
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**9.2625**	**0.5474**	**0.0000**	**22.9474**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	45.63	9.2625	0.5474	0.0000	22.9474
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**9.2625**	**0.5474**	**0.0000**	**22.9474**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Bonsall New High School Phase 2 Construction

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	1,000.00	Student	2.60	104,230.00	0
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
Parking Lot	1.40	Acre	1.40	60,984.00	0
Other Non-Asphalt Surfaces	21.50	Acre	21.50	936,540.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	493.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - See Assumptions

Construction Phase - See Assumptions

Grading -

Vehicle Trips - See Assumptions

Energy Use - See Assumptions

Water And Wastewater -

Solid Waste - See Assumptions

Construction Off-road Equipment Mitigation - See Assumptions

Water Mitigation - See Assumptions

Architectural Coating - See Assumptions

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Parking	250.00	150.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	440.00	283.00
tblConstructionPhase	PhaseEndDate	6/27/2024	1/31/2024
tblConstructionPhase	PhaseEndDate	5/2/2024	1/31/2024
tblConstructionPhase	PhaseEndDate	5/30/2024	2/17/2023

tblConstructionPhase	PhaseStartDate	5/31/2024	12/14/2023
tblConstructionPhase	PhaseStartDate	4/1/2023	1/1/2023
tblConstructionPhase	PhaseStartDate	5/3/2024	1/1/2023
tblLandUse	BuildingSpaceSquareFeet	132,660.98	104,230.00
tblLandUse	LandUseSquareFeet	132,660.98	104,230.00
tblLandUse	LotAcreage	3.05	2.60
tblProjectCharacteristics	CO2IntensityFactor	720.49	493.5
tblProjectCharacteristics	OperationalYear	2018	2025
tblVehicleTrips	WD_TR	1.71	1.30

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.8015	4.0503	4.3184	0.0148	0.6704	0.1060	0.7764	0.1819	0.0995	0.2814	0.0000	1,366.2039	1,366.2039	0.1357	0.0000	1,369.5969
2024	0.6622	0.3437	0.3895	1.3500e-003	0.0676	8.3000e-003	0.0759	0.0183	7.8500e-003	0.0261	0.0000	125.2038	125.2038	0.0112	0.0000	125.4828
Maximum	**0.8015**	**4.0503**	**4.3184**	**0.0148**	**0.6704**	**0.1060**	**0.7764**	**0.1819**	**0.0995**	**0.2814**	**0.0000**	**1,366.2039**	**1,366.2039**	**0.1357**	**0.0000**	**1,369.5969**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.6756	4.0493	4.5778	0.0148	0.6704	0.1344	0.8048	0.1819	0.1340	0.3159	0.0000	1,366.2035	1,366.2035	0.1357	0.0000	1,369.5965
2024	0.6516	0.3543	0.4094	1.3500e-003	0.0676	0.0120	0.0796	0.0183	0.0120	0.0303	0.0000	125.2038	125.2038	0.0112	0.0000	125.4828
Maximum	**0.6756**	**4.0493**	**4.5778**	**0.0148**	**0.6704**	**0.1344**	**0.8048**	**0.1819**	**0.1340**	**0.3159**	**0.0000**	**1,366.2035**	**1,366.2035**	**0.1357**	**0.0000**	**1,369.5965**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	9.32	-0.22	-5.93	0.00	0.00	-28.09	-3.77	0.00	-35.94	-12.55	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2023	3-31-2023	1.2665	1.2433
2	4-1-2023	6-30-2023	1.0724	1.0380
3	7-1-2023	9-30-2023	1.0842	1.0494
4	10-1-2023	12-31-2023	1.4524	1.4171
5	1-1-2024	3-31-2024	0.9696	0.9697
		Highest	1.4524	1.4171

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/1/2023	1/31/2024	5	283	
2	Paving	Paving	1/1/2023	2/17/2023	5	35	
3	Architectural Coating	Architectural Coating	12/14/2023	1/31/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 23.9

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 156,345; Non-Residential Outdoor: 52,115; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42

Paving	Rollers	2	8.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	96.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	481.00	188.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0542	1.8633	0.5775	6.3000e-003	0.1622	2.2300e-003	0.1645	0.0468	2.1300e-003	0.0490	0.0000	616.9758	616.9758	0.0420	0.0000	618.0246
Worker	0.1950	0.1291	1.3451	4.4900e-003	0.5014	3.4000e-003	0.5048	0.1333	3.1300e-003	0.1364	0.0000	405.8606	405.8606	0.0105	0.0000	406.1235
Total	**0.2492**	**1.9923**	**1.9225**	**0.0108**	**0.6637**	**5.6300e-003**	**0.6693**	**0.1801**	**5.2600e-003**	**0.1854**	**0.0000**	**1,022.8364**	**1,022.8364**	**0.0525**	**0.0000**	**1,024.1481**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0876	1.8494	2.3236	3.5000e-003		0.1175	0.1175		0.1175	0.1175	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.0876**	**1.8494**	**2.3236**	**3.5000e-003**		**0.1175**	**0.1175**		**0.1175**	**0.1175**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0542	1.8633	0.5775	6.3000e-003	0.1622	2.2300e-003	0.1645	0.0468	2.1300e-003	0.0490	0.0000	616.9758	616.9758	0.0420	0.0000	618.0246
Worker	0.1950	0.1291	1.3451	4.4900e-003	0.5014	3.4000e-003	0.5048	0.1333	3.1300e-003	0.1364	0.0000	405.8606	405.8606	0.0105	0.0000	406.1235
Total	**0.2492**	**1.9923**	**1.9225**	**0.0108**	**0.6637**	**5.6300e-003**	**0.6693**	**0.1801**	**5.2600e-003**	**0.1854**	**0.0000**	**1,022.8364**	**1,022.8364**	**0.0525**	**0.0000**	**1,024.1481**

3.2 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0169	0.1546	0.1859	3.1000e-004		7.0500e-003	7.0500e-003		6.6300e-003	6.6300e-003	0.0000	26.6627	26.6627	6.3000e-003	0.0000	26.8203
Total	**0.0169**	**0.1546**	**0.1859**	**3.1000e-004**		**7.0500e-003**	**7.0500e-003**		**6.6300e-003**	**6.6300e-003**	**0.0000**	**26.6627**	**26.6627**	**6.3000e-003**	**0.0000**	**26.8203**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6300e-003	0.1625	0.0495	5.5000e-004	0.0144	1.9000e-004	0.0145	4.1400e-003	1.8000e-004	4.3300e-003	0.0000	54.2317	54.2317	3.6700e-003	0.0000	54.3234
Worker	0.0164	0.0105	0.1111	3.8000e-004	0.0444	3.0000e-004	0.0447	0.0118	2.7000e-004	0.0121	0.0000	34.4896	34.4896	8.5000e-004	0.0000	34.5110
Total	**0.0210**	**0.1730**	**0.1606**	**9.3000e-004**	**0.0587**	**4.9000e-004**	**0.0592**	**0.0159**	**4.5000e-004**	**0.0164**	**0.0000**	**88.7213**	**88.7213**	**4.5200e-003**	**0.0000**	**88.8343**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7500e-003	0.1636	0.2056	3.1000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	26.6626	26.6626	6.3000e-003	0.0000	26.8202
Total	**7.7500e-003**	**0.1636**	**0.2056**	**3.1000e-004**		**0.0104**	**0.0104**		**0.0104**	**0.0104**	**0.0000**	**26.6626**	**26.6626**	**6.3000e-003**	**0.0000**	**26.8202**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6300e-003	0.1625	0.0495	5.5000e-004	0.0144	1.9000e-004	0.0145	4.1400e-003	1.8000e-004	4.3300e-003	0.0000	54.2317	54.2317	3.6700e-003	0.0000	54.3234
Worker	0.0164	0.0105	0.1111	3.8000e-004	0.0444	3.0000e-004	0.0447	0.0118	2.7000e-004	0.0121	0.0000	34.4896	34.4896	8.5000e-004	0.0000	34.5110
Total	**0.0210**	**0.1730**	**0.1606**	**9.3000e-004**	**0.0587**	**4.9000e-004**	**0.0592**	**0.0159**	**4.5000e-004**	**0.0164**	**0.0000**	**88.7213**	**88.7213**	**4.5200e-003**	**0.0000**	**88.8343**

3.3 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0181	0.1784	0.2552	4.0000e-004		8.9300e-003	8.9300e-003		8.2100e-003	8.2100e-003	0.0000	35.0470	35.0470	0.0113	0.0000	35.3304
Paving	3.1400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0212**	**0.1784**	**0.2552**	**4.0000e-004**		**8.9300e-003**	**8.9300e-003**		**8.2100e-003**	**8.2100e-003**	**0.0000**	**35.0470**	**35.0470**	**0.0113**	**0.0000**	**35.3304**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.4000e-004	5.6500e-003	2.0000e-005	2.1100e-003	1.0000e-005	2.1200e-003	5.6000e-004	1.0000e-005	5.7000e-004	0.0000	1.7038	1.7038	4.0000e-005	0.0000	1.7049
Total	**8.2000e-004**	**5.4000e-004**	**5.6500e-003**	**2.0000e-005**	**2.1100e-003**	**1.0000e-005**	**2.1200e-003**	**5.6000e-004**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**1.7038**	**1.7038**	**4.0000e-005**	**0.0000**	**1.7049**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8200e-003	0.1977	0.3027	4.0000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	35.0470	35.0470	0.0113	0.0000	35.3304
Paving	3.1400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0130**	**0.1977**	**0.3027**	**4.0000e-004**		**0.0107**	**0.0107**		**0.0107**	**0.0107**	**0.0000**	**35.0470**	**35.0470**	**0.0113**	**0.0000**	**35.3304**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.4000e-004	5.6500e-003	2.0000e-005	2.1100e-003	1.0000e-005	2.1200e-003	5.6000e-004	1.0000e-005	5.7000e-004	0.0000	1.7038	1.7038	4.0000e-005	0.0000	1.7049
Total	**8.2000e-004**	**5.4000e-004**	**5.6500e-003**	**2.0000e-005**	**2.1100e-003**	**1.0000e-005**	**2.1200e-003**	**5.6000e-004**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**1.7038**	**1.7038**	**4.0000e-005**	**0.0000**	**1.7049**

3.4 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3229					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1500e-003	7.8200e-003	0.0109	2.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	1.5320	1.5320	9.0000e-005	0.0000	1.5342
Total	**0.3241**	**7.8200e-003**	**0.0109**	**2.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**1.5320**	**1.5320**	**9.0000e-005**	**0.0000**	**1.5342**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-003	1.1900e-003	0.0124	4.0000e-005	4.6200e-003	3.0000e-005	4.6500e-003	1.2300e-003	3.0000e-005	1.2600e-003	0.0000	3.7386	3.7386	1.0000e-004	0.0000	3.7410
Total	**1.8000e-003**	**1.1900e-003**	**0.0124**	**4.0000e-005**	**4.6200e-003**	**3.0000e-005**	**4.6500e-003**	**1.2300e-003**	**3.0000e-005**	**1.2600e-003**	**0.0000**	**3.7386**	**3.7386**	**1.0000e-004**	**0.0000**	**3.7410**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3229					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6000e-004	8.1400e-003	0.0110	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.5320	1.5320	9.0000e-005	0.0000	1.5342
Total	**0.3233**	**8.1400e-003**	**0.0110**	**2.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**1.5320**	**1.5320**	**9.0000e-005**	**0.0000**	**1.5342**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-003	1.1900e-003	0.0124	4.0000e-005	4.6200e-003	3.0000e-005	4.6500e-003	1.2300e-003	3.0000e-005	1.2600e-003	0.0000	3.7386	3.7386	1.0000e-004	0.0000	3.7410
Total	**1.8000e-003**	**1.1900e-003**	**0.0124**	**4.0000e-005**	**4.6200e-003**	**3.0000e-005**	**4.6500e-003**	**1.2300e-003**	**3.0000e-005**	**1.2600e-003**	**0.0000**	**3.7386**	**3.7386**	**1.0000e-004**	**0.0000**	**3.7410**

3.4 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6189					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0800e-003	0.0140	0.0208	3.0000e-005		7.0000e-004	7.0000e-004		7.0000e-004	7.0000e-004	0.0000	2.9362	2.9362	1.7000e-004	0.0000	2.9404
Total	**0.6210**	**0.0140**	**0.0208**	**3.0000e-005**		**7.0000e-004**	**7.0000e-004**		**7.0000e-004**	**7.0000e-004**	**0.0000**	**2.9362**	**2.9362**	**1.7000e-004**	**0.0000**	**2.9404**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2700e-003	2.0900e-003	0.0222	8.0000e-005	8.8500e-003	6.0000e-005	8.9100e-003	2.3500e-003	5.0000e-005	2.4100e-003	0.0000	6.8836	6.8836	1.7000e-004	0.0000	6.8878
Total	**3.2700e-003**	**2.0900e-003**	**0.0222**	**8.0000e-005**	**8.8500e-003**	**6.0000e-005**	**8.9100e-003**	**2.3500e-003**	**5.0000e-005**	**2.4100e-003**	**0.0000**	**6.8836**	**6.8836**	**1.7000e-004**	**0.0000**	**6.8878**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6189					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8000e-004	0.0156	0.0211	3.0000e-005		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003	0.0000	2.9362	2.9362	1.7000e-004	0.0000	2.9404
Total	**0.6196**	**0.0156**	**0.0211**	**3.0000e-005**		**1.0900e-003**	**1.0900e-003**		**1.0900e-003**	**1.0900e-003**	**0.0000**	**2.9362**	**2.9362**	**1.7000e-004**	**0.0000**	**2.9404**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2700e-003	2.0900e-003	0.0222	8.0000e-005	8.8500e-003	6.0000e-005	8.9100e-003	2.3500e-003	5.0000e-005	2.4100e-003	0.0000	6.8836	6.8836	1.7000e-004	0.0000	6.8878
Total	**3.2700e-003**	**2.0900e-003**	**0.0222**	**8.0000e-005**	**8.8500e-003**	**6.0000e-005**	**8.9100e-003**	**2.3500e-003**	**5.0000e-005**	**2.4100e-003**	**0.0000**	**6.8836**	**6.8836**	**1.7000e-004**	**0.0000**	**6.8878**

Bonsall New High School Build Out Operation

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
High School	1,500.00	Student	3.20	150,500.00	0
Other Asphalt Surfaces	2.80	Acre	2.80	121,968.00	0
Parking Lot	3.10	Acre	3.10	135,036.00	0
Other Non-Asphalt Surfaces	30.50	Acre	30.50	1,328,580.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	493.5	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - See Assumptions

Land Use - See Assumptions

Construction Phase - See Assumptions

Grading -

Vehicle Trips - See Assumptions

Energy Use - See Assumptions

Water And Wastewater - See Assumptions

Solid Waste - See Assumptions

Construction Off-road Equipment Mitigation - See Assumptions

Water Mitigation - See Assumptions

Architectural Coating -

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	740.00	1.00
tblConstructionPhase	PhaseEndDate	1/31/2024	1/2/2023
tblEnergyUse	LightingElect	2.61	2.48
tblEnergyUse	LightingElect	0.88	0.84
tblEnergyUse	T24E	1.60	1.52
tblEnergyUse	T24NG	5.46	5.19
tblLandUse	BuildingSpaceSquareFeet	198,991.47	150,500.00
tblLandUse	LandUseSquareFeet	198,991.47	150,500.00
tblLandUse	LotAcreage	4.57	3.20
tblProjectCharacteristics	CO2IntensityFactor	720.49	493.5
tblProjectCharacteristics	OperationalYear	2018	2025
tblSolidWaste	SolidWasteGenerationRate	273.75	139.38
tblVehicleTrips	WD_TR	1.71	1.30
tblWater	AerobicPercent	87.46	97.54
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	2.46
tblWater	IndoorWaterUseRate	6,607,440.00	5,285,952.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9211	1.3000e-004	0.0141	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0275	0.0275	7.0000e-005	0.0000	0.0292
Energy	4.6000e-003	0.0418	0.0351	2.5000e-004		3.1800e-003	3.1800e-003		3.1800e-003	3.1800e-003	0.0000	245.4379	245.4379	0.0126	3.2700e-003	246.7264
Mobile	0.3603	1.4729	4.2308	0.0159	1.5557	0.0125	1.5682	0.4165	0.0116	0.4281	0.0000	1,469.4257	1,469.4257	0.0729	0.0000	1,471.2478
Waste						0.0000	0.0000		0.0000	0.0000	28.2929	0.0000	28.2929	1.6721	0.0000	70.0944
Water						0.0000	0.0000		0.0000	0.0000	1.8702	57.6618	59.5319	0.0571	4.7700e-003	62.3798
Total	**1.2860**	**1.5149**	**4.2800**	**0.0161**	**1.5557**	**0.0157**	**1.5714**	**0.4165**	**0.0149**	**0.4314**	**30.1631**	**1,772.5527**	**1,802.7158**	**1.8147**	**8.0400e-003**	**1,850.4777**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9211	1.3000e-004	0.0141	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0275	0.0275	7.0000e-005	0.0000	0.0292
Energy	4.6000e-003	0.0418	0.0351	2.5000e-004		3.1800e-003	3.1800e-003		3.1800e-003	3.1800e-003	0.0000	245.4379	245.4379	0.0126	3.2700e-003	246.7264
Mobile	0.3603	1.4729	4.2308	0.0159	1.5557	0.0125	1.5682	0.4165	0.0116	0.4281	0.0000	1,469.4257	1,469.4257	0.0729	0.0000	1,471.2478
Waste						0.0000	0.0000		0.0000	0.0000	28.2929	0.0000	28.2929	1.6721	0.0000	70.0944
Water						0.0000	0.0000		0.0000	0.0000	1.4961	52.0028	53.4989	0.0460	3.8900e-003	55.8072
Total	**1.2860**	**1.5149**	**4.2800**	**0.0161**	**1.5557**	**0.0157**	**1.5714**	**0.4165**	**0.0149**	**0.4314**	**29.7890**	**1,766.8938**	**1,796.6828**	**1.8037**	**7.1600e-003**	**1,843.9050**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.24**	**0.32**	**0.33**	**0.61**	**10.95**	**0.36**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3603	1.4729	4.2308	0.0159	1.5557	0.0125	1.5682	0.4165	0.0116	0.4281	0.0000	1,469.4257	1,469.4257	0.0729	0.0000	1,471.2478
Unmitigated	0.3603	1.4729	4.2308	0.0159	1.5557	0.0125	1.5682	0.4165	0.0116	0.4281	0.0000	1,469.4257	1,469.4257	0.0729	0.0000	1,471.2478

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High School	1,950.00	915.00	375.00	4,129,214	4,129,214
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,950.00	915.00	375.00	4,129,214	4,129,214

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High School	9.50	7.30	7.30	77.80	17.20	5.00	75	19	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High School	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Other Asphalt Surfaces	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Parking Lot	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950
Other Non-Asphalt Surfaces	0.609162	0.038894	0.178600	0.101308	0.013823	0.005356	0.016956	0.024628	0.001928	0.001823	0.005807	0.000764	0.000950

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	199.9007	199.9007	0.0118	2.4300e-003	200.9186
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	199.9007	199.9007	0.0118	2.4300e-003	200.9186
NaturalGas Mitigated	4.6000e-003	0.0418	0.0351	2.5000e-004		3.1800e-003	3.1800e-003		3.1800e-003	3.1800e-003	0.0000	45.5372	45.5372	8.7000e-004	8.3000e-004	45.8078
NaturalGas Unmitigated	4.6000e-003	0.0418	0.0351	2.5000e-004		3.1800e-003	3.1800e-003		3.1800e-003	3.1800e-003	0.0000	45.5372	45.5372	8.7000e-004	8.3000e-004	45.8078

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High School	853335	4.6000e-003	0.0418	0.0351	2.5000e-004		3.1800e-003	3.1800e-003		3.1800e-003	3.1800e-003	0.0000	45.5372	45.5372	8.7000e-004	8.3000e-004	45.8078
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.6000e-003**	**0.0418**	**0.0351**	**2.5000e-004**		**3.1800e-003**	**3.1800e-003**		**3.1800e-003**	**3.1800e-003**	**0.0000**	**45.5372**	**45.5372**	**8.7000e-004**	**8.3000e-004**	**45.8078**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High School	853335	4.6000e-003	0.0418	0.0351	2.5000e-004		3.1800e-003	3.1800e-003		3.1800e-003	3.1800e-003	0.0000	45.5372	45.5372	8.7000e-004	8.3000e-004	45.8078
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.6000e-003**	**0.0418**	**0.0351**	**2.5000e-004**		**3.1800e-003**	**3.1800e-003**		**3.1800e-003**	**3.1800e-003**	**0.0000**	**45.5372**	**45.5372**	**8.7000e-004**	**8.3000e-004**	**45.8078**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	779590	174.5095	0.0103	2.1200e-003	175.3982
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	113430	25.3911	1.4900e-003	3.1000e-004	25.5204
Total		**199.9006**	**0.0117**	**2.4300e-003**	**200.9186**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High School	779590	174.5095	0.0103	2.1200e-003	175.3982
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	113430	25.3911	1.4900e-003	3.1000e-004	25.5204
Total		**199.9006**	**0.0117**	**2.4300e-003**	**200.9186**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9211	1.3000e-004	0.0141	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0275	0.0275	7.0000e-005	0.0000	0.0292
Unmitigated	0.9211	1.3000e-004	0.0141	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0275	0.0275	7.0000e-005	0.0000	0.0292

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2295					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6903					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-003	1.3000e-004	0.0141	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0275	0.0275	7.0000e-005	0.0000	0.0292
Total	**0.9211**	**1.3000e-004**	**0.0141**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0275**	**0.0275**	**7.0000e-005**	**0.0000**	**0.0292**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2295					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6903					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-003	1.3000e-004	0.0141	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0275	0.0275	7.0000e-005	0.0000	0.0292
Total	**0.9211**	**1.3000e-004**	**0.0141**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0275**	**0.0275**	**7.0000e-005**	**0.0000**	**0.0292**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	53.4989	0.0460	3.8900e-003	55.8072
Unmitigated	59.5319	0.0571	4.7700e-003	62.3798

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	5.28595 / 16.9906	59.5319	0.0571	4.7700e-003	62.3798
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**59.5319**	**0.0571**	**4.7700e-003**	**62.3798**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High School	4.22876 / 15.9541	53.4989	0.0460	3.8900e-003	55.8072
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**53.4989**	**0.0460**	**3.8900e-003**	**55.8072**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	28.2929	1.6721	0.0000	70.0944
Unmitigated	28.2929	1.6721	0.0000	70.0944

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	139.38	28.2929	1.6721	0.0000	70.0944
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**28.2929**	**1.6721**	**0.0000**	**70.0944**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High School	139.38	28.2929	1.6721	0.0000	70.0944
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**28.2929**	**1.6721**	**0.0000**	**70.0944**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix P
Noise Modeling

ESA

Noise Appendix

Proposed Project Assumptions
Construction Noise Model Output
Traffic Noise Model Output

Proposed Project Assumptions

Bonsall High School
Construction Assumptions
Phase 1

Schedule					
Grading	Grading	2019/09/01	2020/02/01	5	110
Paving	Paving	2019/12/01	2019/12/27	5	20
Building Construction	Building Construction	2019/12/01	2020/12/31	5	284
Architectural Coating	Architectural Coating	2020/12/04	2020/12/31	5	20

Equipment					
PhaseName	**OffRoadEquipmentType**	**OffRoadEqui**	**UsageHours**	**HorsePowe**	**LoadFactor**
Grading	Excavators	2	8	158	0.38
Grading	Graders	1	8	187	0.41
Grading	Rubber Tired Dozers	1	8	247	0.4
Grading	Scrapers	2	8	367	0.48
Grading	Tractors/Loaders/Backho	2	8	97	0.37
Paving	Pavers	2	8	130	0.42
Paving	Paving Equipment	2	8	132	0.36
Paving	Rollers	2	8	80	0.38
Building Construction	Cranes	1	7	231	0.29
Building Construction	Forklifts	3	8	89	0.2
Building Construction	Generator Sets	1	8	84	0.74
Building Construction	Tractors/Loaders/Backho	3	7	97	0.37
Building Construction	Welders	1	8	46	0.45
Architectural Coating	Air Compressors	1	6	78	0.48

Bonsall High School
Construction Assumptions
Phase 2

Schedule					
Paving	Paving	2023/01/01	2023/02/17	5	35
Building Construction	Building Construction	2023/01/01	2024/01/31	5	283
Architectural Coating	Architectural Coating	2023/12/14	2024/01/31	5	35

Equipment					
PhaseName	**OffRoadEquipmentType**	**OffRoadEqui**	**UsageHours**	**HorsePow**	**LoadFactor**
Building Construction	Cranes	1	7	231	0.29
Building Construction	Forklifts	3	8	89	0.2
Building Construction	Generator Sets	1	8	84	0.74
Building Construction	Tractors/Loaders/Backhc	3	7	97	0.37
Building Construction	Welders	1	8	46	0.45
Paving	Pavers	2	8	130	0.42
Paving	Paving Equipment	2	8	132	0.36
Paving	Rollers	2	8	80	0.38
Architectural Coating	Air Compressors	1	6	78	0.48

Construction Noise Model Output

Project: Bonsall High School

Construction Noise Impact on Sensitive Receptors

Phase 1

Parameters

Construction Hours:	8	Daytime hours (7 am to 7 pm)
	0	Evening hours (7 pm to 10 pm)
	0	Nighttime hours (10 pm to 7 am)
Leq to L10 factor	3	

				North					East				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Grading					**65**	***66***				**67**	***68***		
Graders	1	85	40%	500	65	61	64	0	400	67	63	66	0
Excavator	2	81	40%	600	62	58	61	0	400	66	62	65	0
Rubber Tired Dozer	1	82	40%	700	59	55	58	0	500	62	58	61	0
Scrapers	2	84	40%	700	64	60	63	0	500	67	63	66	0
Tractor/Loader/Backhoe	2	80	25%	700	60	54	57	0	500	63	57	60	0
Paving					**67**	***61***				**70**	***64***		
Paver	1	77	50%	500	57	54	57	0	400	59	56	59	0
Roller	1	80	20%	600	58	51	54	0	400	62	55	58	0
Paving Equipment	1	90	20%	700	67	60	63	0	500	70	63	66	0
Building Construction					**60**	***61***				**63**	***63***		
Tractor/Loader/Backhoe	1	80	25%	500	60	54	57	0	400	62	56	59	0
Forklift	1	75	10%	600	53	43	46	0	400	57	47	50	0
Cranes	1	81	40%	700	58	54	57	0	500	61	57	60	0
Generator Sets	1	81	50%	700	58	55	58	0	500	61	58	61	0
Tractor/Loader/Backhoe	2	80	25%	700	60	54	57	0	500	63	57	60	0
Forklift	2	75	10%	700	55	45	48	0	500	58	48	51	0
Welders	1	74	40%	700	51	47	50	0	500	54	50	53	0
Architecural Coating					**58**	***55***				**60**	***57***		
Air Compressor	1	78	50%	500	58	55	58	0	400	60	57	60	0

Source for Ref. Noise Levels: FHWA RCNM, 2005

Project: Bonsall High School

Construction Noise Impact on Sensitive Receptors

Phase 2

Parameters

Construction Hours:	8	Daytime hours (7 am to 7 pm)
	0	Evening hours (7 pm to 10 pm)
	0	Nighttime hours (10 pm to 7 am)
Leq to L10 factor	3	

				North					East				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Paving					**72**	***67***				**69**	***63***		
Paver	1	77	50%	200	65	62	65	0	450	58	55	58	0
Roller	1	80	20%	300	64	57	60	0	450	61	54	57	0
Paving Equipment	1	90	20%	400	72	65	68	0	550	69	62	65	0
Building Construction					**68**	***66***				**62**	***63***		
Tractor/Loader/Backhoe	1	80	25%	200	68	62	65	0	450	61	55	58	0
Forklift	1	75	10%	300	59	49	52	0	450	56	46	49	0
Cranes	1	81	40%	400	63	59	62	0	550	60	56	59	0
Generator Sets	1	81	50%	400	63	60	63	0	550	60	57	60	0
Tractor/Loader/Backhoe	2	80	25%	400	65	59	62	0	550	62	56	59	0
Forklift	2	75	10%	400	60	50	53	0	550	57	47	50	0
Welders	1	74	40%	400	56	52	55	0	550	53	49	52	0
Architecural Coating					**66**	***63***				**59**	***56***		
Air Compressor	1	78	50%	200	66	63	66	0	450	59	56	59	0

Source for Ref. Noise Levels: FHWA RCNM, 2005

Project: South Bay Galleria Project

Off-site Construction Traffic Noise

Roadway/Segment	Traffic Volumes AM	PM	ADT	Leq ROW	Leq 25 Feet	Leq 50 Feet	CNEL ROW	CNEL 25 Feet	CNEL 50 Feet
Gird Road			188	61.1	57.0	54.9	58.1	54.0	51.9
SR-76			188	61.1	57.0	54.9	58.1	54.0	51.9
0			0	-	-	-	-	-	-
0			0	-	-	-	-	-	-
0			0	-	-	-	-	-	-

Roadway/Segment	Traffic Volumes AM	PM	ADT	Leq ROW	Leq 25 Feet	Leq 50 Feet	CNEL ROW	CNEL 25 Feet	CNEL 50 Feet
			0	-	-	-	-	-	-
			0	-	-	-	-	-	-
			0	-	-	-	-	-	-
			0	-	-	-	-	-	-
			0	-	-	-	-	-	-

Roadway/Segment	Traffic Volumes AM	PM	ADT	Leq ROW	Leq 25 Feet	Leq 50 Feet	CNEL ROW	CNEL 25 Feet	CNEL 50 Feet
			0	-	-	-	-	-	-
			0	-	-	-	-	-	-
			0	-	-	-	-	-	-
			0	-	-	-	-	-	-
			0	-	-	-	-	-	-

Ldn

Summary Roadway/Segment	25 ft. from ROW Project Increment	25 ft. from ROW Cumulative Increment	At ROW Project Increment	At ROW Cumulative Increment
Gird Road	-	-	-	-
SR-76	-	-	-	-
0	-	-	-	-
0	-	-	-	-
0	-	-	-	-

Traffic Noise Model Output

Roadway Traffic Noise Calculations

Project: Bonsall High School

Existing										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Gird Road between SR-76 and Knottwood Way	35			4000	67.5	61.9	59.6	68.7	63.1	60.8
Gird Road between n/o Knottwood Way	35			4200	67.7	62.1	59.8	68.9	63.4	61.0
SR-76 s/o Old River Road	40			36900	74.3	71.3	69.5	75.5	72.5	70.8
SR-76 between Old River Road and North River Road	40			42000	74.9	71.9	70.1	76.1	73.1	71.3
SR-76 between North River Road and Olive Hill Road	40			40400	74.7	71.7	69.9	75.9	72.9	71.2
Future No Project										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Gird Road between SR-76 and Knottwood Way	35			4900	68.4	62.8	60.4	69.6	64.0	61.7
Gird Road between n/o Knottwood Way	35			5100	68.6	63.0	60.6	69.8	64.2	61.8
SR-76 s/o Old River Road	40			44800	75.1	72.1	70.4	76.3	73.4	71.6
SR-76 between Old River Road and North River Road	40			50900	75.7	72.7	70.9	76.9	73.9	72.2
SR-76 between North River Road and Olive Hill Road	40			49000	75.5	72.5	70.8	76.7	73.7	72.0
Future With Project										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Gird Road between SR-76 and Knottwood Way	35			6600	69.7	64.1	61.7	70.9	65.3	63.0
Gird Road between n/o Knottwood Way	35			5300	68.7	63.1	60.8	70.0	64.4	62.0
SR-76 s/o Old River Road	40			45000	75.2	72.2	70.4	76.4	73.4	71.6
SR-76 between Old River Road and North River Road	40			51200	75.7	72.7	71.0	76.9	73.9	72.2
SR-76 between North River Road and Olive Hill Road	40			49600	75.6	72.6	70.8	76.8	73.8	72.0

CNEL

Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Gird Road between SR-76 and Knottwood Way	1.3	2.2	1.3	2.2
Gird Road between n/o Knottwood Way	0.2	1.0	0.2	1.1
SR-76 s/o Old River Road	0.0	0.9	0.1	0.9
SR-76 between Old River Road and North River Road	0.0	0.8	0.0	0.8
SR-76 between North River Road and Olive Hill Road	0.1	0.9	0.1	0.9

	% of ADT			
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Roadway Traffic Noise Calculations

Project: Bonsall High School

Existing										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
SR-76 between Olive Hill Road and South Mission Road	45			44500	75.3	72.8	71.2	76.5	74.0	72.4
SR-76 between South Mission Road and Via Monserate	35			23900	73.0	68.9	66.9	74.2	70.1	68.1
SR-76 between Via Monserate and Gird Road	35			24500	73.1	69.0	67.0	74.3	70.3	68.2
SR-76 between Gird Road and Old Highway 395	35			27000	73.5	69.5	67.4	74.8	70.7	68.6
SR-76 n/o Old Highway 395	35			26000	73.4	69.3	67.2	74.6	70.5	68.5
Future No Project										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
SR-76 between Olive Hill Road and South Mission Road	45			54000	76.2	73.7	72.1	77.4	74.9	73.3
SR-76 between South Mission Road and Via Monserate	35			29200	73.9	69.8	67.7	75.1	71.0	69.0
SR-76 between Via Monserate and Gird Road	35			30000	74.0	69.9	67.9	75.2	71.1	69.1
SR-76 between Gird Road and Old Highway 395	35			33000	74.4	70.3	68.3	75.6	71.6	69.5
SR-76 n/o Old Highway 395	35			31600	74.2	70.1	68.1	75.4	71.4	69.3
Future With Project										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
SR-76 between Olive Hill Road and South Mission Road	45			54000	76.2	73.7	72.1	77.4	74.9	73.3
SR-76 between South Mission Road and Via Monserate	35			29200	73.9	69.8	67.7	75.1	71.0	69.0
SR-76 between Via Monserate and Gird Road	35			30000	74.0	69.9	67.9	75.2	71.1	69.1
SR-76 between Gird Road and Old Highway 395	35			33000	74.4	70.3	68.3	75.6	71.6	69.5
SR-76 n/o Old Highway 395	35			31600	74.2	70.1	68.1	75.4	71.4	69.3

CNEL

Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
SR-76 between Olive Hill Road and South Mission Road	0.0	0.9	0.0	0.9
SR-76 between South Mission Road and Via Monserate	0.0	0.9	0.0	0.9
SR-76 between Via Monserate and Gird Road	0.0	0.8	0.0	0.9
SR-76 between Gird Road and Old Highway 395	0.0	0.9	0.0	0.8
SR-76 n/o Old Highway 395	0.0	0.9	0.0	0.8

	% of ADT			
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Roadway Traffic Noise Calculations

Project: Bonsall High School

Existing										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Knottwood Way w/o Gird Rd	35			600	57.0	52.9	50.9	58.2	54.1	52.1
Via Monserate w/o SR-76	35			900	58.8	54.7	52.6	60.0	55.9	53.8
South Mission Road w/o SR-76	35			21400	72.5	68.5	66.4	73.7	69.7	67.6
Olive Hill Road w/o SR-76	35			7000	67.7	63.6	61.5	68.9	64.8	62.8
Olive Hill Road e/o SR-76	35			10700	69.5	65.4	63.4	70.7	66.7	64.6
Future No Project										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Knottwood Way w/o Gird Rd	35			700	57.7	53.6	51.5	58.9	54.8	52.8
Via Monserate w/o SR-76	35			1200	60.0	55.9	53.9	61.2	57.2	55.1
South Mission Road w/o SR-76	35			26400	73.4	69.4	67.3	74.7	70.6	68.5
Olive Hill Road w/o SR-76	35			8800	68.7	64.6	62.5	69.9	65.8	63.7
Olive Hill Road e/o SR-76	35			13300	70.5	66.4	64.3	71.7	67.6	65.5
Future With Project										
	Speed	Traffic Volumes			Leq			CNEL		
Roadway/Segment	MPH	AM	PM	ADT	ROW	25 Feet	50 Feet	ROW	25 Feet	50 Feet
Knottwood Way w/o Gird Rd	35			800	58.3	54.2	52.1	59.5	55.4	53.3
Via Monserate w/o SR-76	35			1300	60.4	56.3	54.2	61.6	57.5	55.4
South Mission Road w/o SR-76	35			26400	73.4	69.4	67.3	74.7	70.6	68.5
Olive Hill Road w/o SR-76	35			9000	68.8	64.7	62.6	70.0	65.9	63.8
Olive Hill Road e/o SR-76	35			13800	70.6	66.5	64.5	71.8	67.8	65.7

CNEL

Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Knottwood Way w/o Gird Rd	0.6	1.3	0.6	1.3
Via Monserate w/o SR-76	0.3	1.6	0.4	1.6
South Mission Road w/o SR-76	0.0	0.9	0.0	1.0
Olive Hill Road w/o SR-76	0.1	1.1	0.1	1.1
Olive Hill Road e/o SR-76	0.2	1.1	0.1	1.1

	% of ADT			
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Roadway Traffic Noise Calculations

Project: Bonsall High School

Existing

Roadway/Segment	Speed MPH	Traffic Volumes AM	PM	ADT	Leq ROW	Leq 25 Feet	Leq 50 Feet	CNEL ROW	CNEL 25 Feet	CNEL 50 Feet
Camino Del Rey between Old River Rd and Lilac Road	35			9900	69.2	65.1	63.0	70.4	66.3	64.3
Camino Del Rey e/o Lilac Road	35			8100	68.3	64.2	62.2	69.5	65.5	63.4
Lilac Road n/o Camino Del Rey	35			2200	62.6	58.6	56.5	63.9	59.8	57.7
Old River Road s/o Camino Del Rey	35			1800	61.8	57.7	55.6	63.0	58.9	56.9
0	0			0	-	-	-	-	-	-

Future No Project

Roadway/Segment	Speed MPH	Traffic Volumes AM	PM	ADT	Leq ROW	Leq 25 Feet	Leq 50 Feet	CNEL ROW	CNEL 25 Feet	CNEL 50 Feet
Camino Del Rey between Old River Rd and Lilac Road	35			12400	70.2	66.1	64.0	71.4	67.3	65.2
Camino Del Rey e/o Lilac Road	35			10200	69.3	65.2	63.2	70.5	66.5	64.4
Lilac Road n/o Camino Del Rey	35			2600	63.4	59.3	57.2	64.6	60.5	58.5
Old River Road s/o Camino Del Rey	35			2200	62.6	58.6	56.5	63.9	59.8	57.7
0	0			0	-	-	-	-	-	-

Future With Project

Roadway/Segment	Speed MPH	Traffic Volumes AM	PM	ADT	Leq ROW	Leq 25 Feet	Leq 50 Feet	CNEL ROW	CNEL 25 Feet	CNEL 50 Feet
Camino Del Rey between Old River Rd and Lilac Road	35			12800	70.3	66.2	64.2	71.5	67.4	65.4
Camino Del Rey e/o Lilac Road	35			10400	69.4	65.3	63.3	70.6	66.5	64.5
Lilac Road n/o Camino Del Rey	35			2800	63.7	59.6	57.6	64.9	60.8	58.8
Old River Road s/o Camino Del Rey	35			2300	62.8	58.8	56.7	64.1	60.0	57.9
0	0			0	-	-	-	-	-	-

CNEL

Summary Roadway/Segment	25 ft. from ROW Project Increment	25 ft. from ROW Cumulative Increment	At ROW Project Increment	At ROW Cumulative Increment
Camino Del Rey between Old River Rd and Lilac Road	0.1	1.1	0.1	1.1
Camino Del Rey e/o Lilac Road	0.0	1.0	0.1	1.1
Lilac Road n/o Camino Del Rey	0.3	1.0	0.3	1.0
Old River Road s/o Camino Del Rey	0.2	1.1	0.2	1.1
0	-	-	-	-

	% of ADT			
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Roadway Traffic Noise Calculations

Project: Bonsall High School

Roadway/Segment	Speed MPH	Traffic Volumes AM	PM	ADT	Leq ROW	Leq 25 Feet	Leq 50 Feet	CNEL ROW	CNEL 25 Feet	CNEL 50 Feet
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
Existing										
Roadway/Segment	**Speed MPH**	**Traffic Volumes AM**	**PM**	**ADT**	**Leq ROW**	**Leq 25 Feet**	**Leq 50 Feet**	**CNEL ROW**	**CNEL 25 Feet**	**CNEL 50 Feet**
Gird Road between SR-76 and Knottwood Way	35			4000	67.5	61.9	59.6	68.7	63.1	60.8
Gird Road between n/o Knottwood Way	35			4200	67.7	62.1	59.8	68.9	63.4	61.0
SR-76 s/o Old River Road	40			36900	74.3	71.3	69.5	75.5	72.5	70.8
SR-76 between Old River Road and North River Road	40			42000	74.9	71.9	70.1	76.1	73.1	71.3
SR-76 between North River Road and Olive Hill Road	40			40400	74.7	71.7	69.9	75.9	72.9	71.2
Existing With Project										
Roadway/Segment	**Speed MPH**	**Traffic Volumes AM**	**PM**	**ADT**	**Leq ROW**	**Leq 25 Feet**	**Leq 50 Feet**	**CNEL ROW**	**CNEL 25 Feet**	**CNEL 50 Feet**
Gird Road between SR-76 and Knottwood Way	35			5700	69.1	63.5	61.1	70.3	64.7	62.3
Gird Road between n/o Knottwood Way	35			4400	67.9	62.3	60.0	69.1	63.6	61.2
SR-76 s/o Old River Road	40			37100	74.3	71.3	69.6	75.5	72.5	70.8
SR-76 between Old River Road and North River Road	40			42300	74.9	71.9	70.1	76.1	73.1	71.4
SR-76 between North River Road and Olive Hill Road	40			41000	74.7	71.8	70.0	76.0	73.0	71.2

CNEL

Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Gird Road between SR-76 and Knottwood Way	1.6	-	1.6	-
Gird Road between n/o Knottwood Way	0.2	-	0.2	-
SR-76 s/o Old River Road	0.0	-	0.0	-
SR-76 between Old River Road and North River Road	0.0	-	0.0	-
SR-76 between North River Road and Olive Hill Road	0.1	-	0.1	-

% of ADT				
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Roadway Traffic Noise Calculations

Project: Bonsall High School

Roadway/Segment	Speed MPH	Traffic Volumes AM	PM	ADT	Leq ROW	Leq 25 Feet	Leq 50 Feet	CNEL ROW	CNEL 25 Feet	CNEL 50 Feet
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
Existing										
Roadway/Segment	**Speed MPH**	**Traffic Volumes AM**	**PM**	**ADT**	**Leq ROW**	**Leq 25 Feet**	**Leq 50 Feet**	**CNEL ROW**	**CNEL 25 Feet**	**CNEL 50 Feet**
SR-76 between Olive Hill Road and South Mission Road	45			44500	75.3	72.8	71.2	76.5	74.0	72.4
SR-76 between South Mission Road and Via Monserate	35			23900	73.0	68.9	66.9	74.2	70.1	68.1
SR-76 between Via Monserate and Gird Road	35			24500	73.1	69.0	67.0	74.3	70.3	68.2
SR-76 between Gird Road and Old Highway 395	35			27000	73.5	69.5	67.4	74.8	70.7	68.6
SR-76 n/o Old Highway 395	35			26000	73.4	69.3	67.2	74.6	70.5	68.5
Existing With Project										
Roadway/Segment	**Speed MPH**	**Traffic Volumes AM**	**PM**	**ADT**	**Leq ROW**	**Leq 25 Feet**	**Leq 50 Feet**	**CNEL ROW**	**CNEL 25 Feet**	**CNEL 50 Feet**
SR-76 between Olive Hill Road and South Mission Road	45			45800	75.5	72.9	71.4	76.7	74.2	72.6
SR-76 between South Mission Road and Via Monserate	35			25200	73.2	69.2	67.1	74.5	70.4	68.3
SR-76 between Via Monserate and Gird Road	35			25900	73.4	69.3	67.2	74.6	70.5	68.4
SR-76 between Gird Road and Old Highway 395	35			27300	73.6	69.5	67.4	74.8	70.7	68.7
SR-76 n/o Old Highway 395	35			26100	73.4	69.3	67.3	74.6	70.5	68.5

CNEL

Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
SR-76 between Olive Hill Road and South Mission Road	0.2	-	0.2	-
SR-76 between South Mission Road and Via Monserate	0.3	-	0.3	-
SR-76 between Via Monserate and Gird Road	0.2	-	0.3	-
SR-76 between Gird Road and Old Highway 395	0.0	-	0.0	-
SR-76 n/o Old Highway 395	0.0	-	0.0	-

	% of ADT			
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Roadway Traffic Noise Calculations

Project: Bonsall High School

Roadway/Segment	Speed MPH	Traffic Volumes AM	PM	ADT	Leq ROW	Leq 25 Feet	Leq 50 Feet	CNEL ROW	CNEL 25 Feet	CNEL 50 Feet
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
Existing										
Roadway/Segment	**Speed MPH**	**Traffic Volumes AM**	**PM**	**ADT**	**Leq ROW**	**Leq 25 Feet**	**Leq 50 Feet**	**CNEL ROW**	**CNEL 25 Feet**	**CNEL 50 Feet**
Knottwood Way w/o Gird Rd	35			600	57.0	52.9	50.9	58.2	54.1	52.1
Via Monserate w/o SR-76	35			900	58.8	54.7	52.6	60.0	55.9	53.8
South Mission Road w/o SR-76	35			21400	72.5	68.5	66.4	73.7	69.7	67.6
Olive Hill Road w/o SR-76	35			7000	67.7	63.6	61.5	68.9	64.8	62.8
Olive Hill Road e/o SR-76	35			10700	69.5	65.4	63.4	70.7	66.7	64.6
Existing With Project										
Roadway/Segment	**Speed MPH**	**Traffic Volumes AM**	**PM**	**ADT**	**Leq ROW**	**Leq 25 Feet**	**Leq 50 Feet**	**CNEL ROW**	**CNEL 25 Feet**	**CNEL 50 Feet**
Knottwood Way w/o Gird Rd	35			700	57.7	53.6	51.5	58.9	54.8	52.8
Via Monserate w/o SR-76	35			1000	59.2	55.2	53.1	60.4	56.4	54.3
South Mission Road w/o SR-76	35			21400	72.5	68.5	66.4	73.7	69.7	67.6
Olive Hill Road w/o SR-76	35			7200	67.8	63.7	61.7	69.0	64.9	62.9
Olive Hill Road e/o SR-76	35			11200	69.7	65.6	63.6	70.9	66.9	64.8

CNEL

Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Knottwood Way w/o Gird Rd	0.7	-	0.7	-
Via Monserate w/o SR-76	0.5	-	0.4	-
South Mission Road w/o SR-76	0.0	-	0.0	-
Olive Hill Road w/o SR-76	0.1	-	0.1	-
Olive Hill Road e/o SR-76	0.2	-	0.2	-

	% of ADT			
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Roadway Traffic Noise Calculations

Project: Bonsall High School

Roadway/Segment	Speed MPH	Traffic Volumes AM	PM	ADT	Leq ROW	Leq 25 Feet	Leq 50 Feet	CNEL ROW	CNEL 25 Feet	CNEL 50 Feet
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
				0	-	-	-	-	-	-
Existing										
Roadway/Segment	**Speed MPH**	**Traffic Volumes AM**	**PM**	**ADT**	**Leq ROW**	**Leq 25 Feet**	**Leq 50 Feet**	**CNEL ROW**	**CNEL 25 Feet**	**CNEL 50 Feet**
Camino Del Rey between Olid River Rd and Lilac Road	35			9900	69.2	65.1	63.0	70.4	66.3	64.3
Camino Del Rey e/o Lilac Road	35			8100	68.3	64.2	62.2	69.5	65.5	63.4
Lilac Road n/o Camino Del Rey	35			2200	62.6	58.6	56.5	63.9	59.8	57.7
Old River Road s/o Camino Del Rey	35			1800	61.8	57.7	55.6	63.0	58.9	56.9
0	0			0	-	-	-	-	-	-
Existing With Project										
Roadway/Segment	**Speed MPH**	**Traffic Volumes AM**	**PM**	**ADT**	**Leq ROW**	**Leq 25 Feet**	**Leq 50 Feet**	**CNEL ROW**	**CNEL 25 Feet**	**CNEL 50 Feet**
Camino Del Rey between Olid River Rd and Lilac Road	35			10300	69.4	65.3	63.2	70.6	66.5	64.4
Camino Del Rey e/o Lilac Road	35			8300	68.4	64.3	62.3	69.6	65.6	63.5
Lilac Road n/o Camino Del Rey	35			2500	63.2	59.1	57.1	64.4	60.3	58.3
Old River Road s/o Camino Del Rey	35			1900	62.0	57.9	55.9	63.2	59.2	57.1
0	0			0	-	-	-	-	-	-

CNEL

Summary	25 ft. from ROW		At ROW	
Roadway/Segment	Project Increment	Cumulative Increment	Project Increment	Cumulative Increment
Camino Del Rey between Olid River Rd and Lilac Road	0.2	-	0.2	-
Camino Del Rey e/o Lilac Road	0.1	-	0.1	-
Lilac Road n/o Camino Del Rey	0.5	-	0.5	-
Old River Road s/o Camino Del Rey	0.3	-	0.2	-
0	-	-	-	-

	% of ADT			
Vehicle Type	Day	Eve	Night	Sub total
Auto	77.6%	9.7%	9.7%	97.0%
Medium Truck	1.6%	0.2%	0.2%	2.0%
Heavy Truck	0.8%	0.1%	0.1%	1.0%
	80.0%	10.0%	10.0%	100.0%

Appendix Q
Traffic Report

ESA

KUNZMAN ASSOCIATES, INC.

BONSALL HIGH SCHOOL

REVISED TRAFFIC IMPACT ANALYSIS

August 7, 2017

Traffic Engineering | Transportation Planning | Parking | Noise/Vibration | Expert Witness
Air Quality | Global Climate Change | Health Risk Assessment

BONSALL HIGH SCHOOL

REVISED TRAFFIC IMPACT ANALYSIS

August 7, 2017

Prepared by:

Giancarlo Ganddini, T.E., P.T.P.
Carl Ballard, LEED GA

KUNZMAN ASSOCIATES, INC.
1111 Town & Country Road, Suite 34 ■ Orange, California 92868
5005 La Mart Drive, Suite 201 ■ Riverside, California 92507
(714) 973-8383 ■ www.traffic-engineer.com

JN 6497

TABLE OF CONTENTS

EXECUTIVE SUMMARY I

A. Project Description i
B. Traffic Conditions i
C. Off-Site Mitigation Measures ii
D. On-Site/Site Adjacent Recommendations ii

I. INTRODUCTION 1

A. Project Description 1
B. Study Area 1
C. Analysis Scenarios 1

II. METHODOLOGY 4

A. Intersection Analysis Methodology 4
B. Performance Targets 4
C. Thresholds of Significance - County of San Diego 5
D. Thresholds of Significance - Caltrans 5

III. EXISTING CONDITIONS 6

A. Existing Roadway System 6
B. Existing Traffic Volumes 7
C. Existing Intersection Delay and Level of Service 8
D. County of San Diego General Plan Circulation Element 8
E. Existing Transit Service, Pedestrian, and Bicycle Facilities 8

IV. PROJECT TRIPS 21

A. Trip Generation 21
B. Trip Distribution 21
C. Trip Assignment 21

V. FUTURE TRAFFIC VOLUMES 27

A. Method of Projection 27
   1. Ambient Growth 27
   2. Other Development 27
B. Future Traffic Volumes 27
   1. Existing Plus Project 27
   2. Year 2025 Without Project 28
   3. Year 2025 With Project 28

VI. FUTURE LEVELS OF SERVICE 38

A. Existing Plus Project Intersection and Roadway Segment Level of Service 38
B. Year 2025 Without Project Intersection and Roadway Segment Level of Service 38
C. Year 2025 With Project Intersection and Roadway Segment Level of Service 39
D. Project Driveways Analysis 39

VII. RECOMMENDATIONS 46

A. Off-Site Mitigation Measures 46
B. On-Site & Site Adjacent Recommendations 46

VIII. CEQA CHECKLIST 48

APPENDICES

Appendix A – Glossary of Transportation Terms

Appendix B – Traffic Count Worksheets

Appendix C – Existing Intersection Delay and Level of Service Worksheets

Appendix D – Attendance Boundary Map

Appendix E – Other Development Information

Appendix F – Future Intersection Delay and Level of Service Worksheets

LIST OF TABLES

Table 1. Existing Intersection Delay and Level of Service....9
Table 2. Project Trip Generation....22
Table 3. Existing Plus Project Intersection Delay and Level of Service....40
Table 4. Existing Plus Project Significant Impact Evaluation....41
Table 5. Year 2025 Without Project Intersection Delay and Level of Service....42
Table 6. Year 2025 With Project Intersection Delay and Level of Service....43
Table 7. Year 2025 With Project Significant Impact Evaluation....44
Table 8. Year 2025 Project Driveway Delay and Levels of Service....45

LIST OF FIGURES

Figure 1. Project Location Map 2
Figure 2. Site Plan 3
Figure 3. Existing Through Travel Lanes and Intersection Controls 10
Figure 4. Existing Average Daily Traffic Volumes 11
Figure 5. Existing Morning Peak Hour Intersection Turning Movement Volumes 12
Figure 6. Existing Evening Peak Hour Intersection Turning Movement Volumes 13
Figure 7. County of San Diego Mobility Element Network (Bonsall) 14
Figure 8. County of San Diego Mobility Element Network (Fallbrook) 15
Figure 9. County of San Diego Public Roadway Cross-Sections 16
Figure 10. County of San Diego Bikeway Master Plan (Bonsall) 17
Figure 11. County of San Diego Bikeway Master Plan (Fallbrook) 18
Figure 12. Existing Pedestrian and Bicycle Facilities 19
Figure 13. County of San Diego Transit Routes 20
Figure 14. Project Trip Distribution 23
Figure 15. Project Average Daily Traffic Volumes 24
Figure 16. Project Morning Peak Hour Intersection Turning Movement Volumes 25
Figure 17. Project Evening Peak Hour Intersection Turning Movement Volumes 26
Figure 18. Existing Plus Project Average Daily Traffic Volumes 29
Figure 19. Existing Plus Project Morning Peak Hour Intersection Turning Movement Volumes 30
Figure 20. Existing Plus Project Evening Peak Hour Intersection Turning Movement Volumes 31
Figure 21. Year 2025 Without Project Average Daily Traffic Volumes 32
Figure 22. Year 2025 Without Project Morning Peak Hour Intersection Turning Movement Volumes 33
Figure 23. Year 2025 Without Project Evening Peak Hour Intersection Turning Movement Volumes 34
Figure 24. Year 2025 With Project Average Daily Traffic Volumes 35
Figure 25. Year 2025 With Project Morning Peak Hour Intersection Turning Movement Volumes 36
Figure 26. Year 2025 With Project Evening Peak Hour Intersection Turning Movement Volumes 37
Figure 27. Circulation Recommendations 47

EXECUTIVE SUMMARY

The purpose of this report is to provide an assessment of the traffic impacts resulting from the development of the proposed Bonsall High School Project and to identify the traffic mitigation measures necessary to maintain the established Level of Service standard for the elements of the impacted roadway system. The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act (CEQA).

The Bonsall Unified School District is the lead agency responsible for preparation of the traffic impact analysis, in accordance with California Environmental Quality Act authorizing legislation. This report analyzes traffic impacts for the anticipated buildout year with occupancy of the development in Year 2025, at which time it will be generating trips at its full potential.

Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with those terms unique to transportation engineering, a glossary of terms is provided in Appendix A.

A. Project Description

The project site is located on the west side of Gird Road approximately 1,500 feet north of State Route 76 (SR-76). The proposed project consists of developing the currently vacant project site with a high school for up to 1,500 students. Project access will be provided via a new driveway at Gird Road with on-site turn-around loop for pick-up/drop-off. The project is anticipated to open in Year 2021 with up to 500 students and reach ultimate buildout in Year 2025 with up to 1,500 students. For purposes of this analysis, the project is analyzed at ultimate buildout in Year 2025.

B. Traffic Conditions

The study area intersections currently operate within acceptable Levels of Service during the peak hours for Existing traffic conditions, with the exception of the intersection of SR-76/Via Monserate, which is currently operating at Level of Service F during both the morning and evening peak hours (see Table 1).

The proposed project is forecast to generate approximately 1,950 daily trips, 390 trips of which will occur during the morning peak hour and 195 trips of which will occur during the evening peak hour (see Table 2).

The study area intersections are projected to operate within acceptable Levels of Service during the peak hours for Existing Plus Project traffic conditions, with the exception of the intersection of SR-76/Via Monserate, which is forecast to continue operating at Level of Service F during both the morning and evening peak hours.

The proposed project is forecast to result in no significant traffic impacts at the study intersections upon completion of SR-76 improvements currently under construction for Existing Plus Project traffic conditions (see Table 4).

The study area intersections are projected to operate within acceptable Levels of Service during the peak hours for Year 2025 Without Project traffic conditions, with the exception of Old River Road [West]/Camino Del Rey, which is forecast to operate at Level of Service E during the morning peak hour (see Table 5).

The study area intersections are projected to operate within acceptable Levels of Service during the peak hours for Year 2025 With Project traffic conditions, with the exception of the following study intersections (see Table 6):

- Old River Road [West] (NS)/Camino Del Rey (EW) - #5 [morning & evening peak hour]
- Lilac Road (NS)/Camino Del Rey (EW) - #7 [morning peak hour only]

Without improvements, the proposed project is forecast to result in a significant traffic impact at the Old River Road [West]/Camino Del Rey intersection during the morning peak hour for Year 2025 With Project traffic conditions. The proposed project is forecast to result in no significant traffic impacts at the study intersections for Year 2025 With Project traffic conditions with improvements (see Table 7).

The proposed project driveway is forecast to operate within acceptable Levels of Service during the peak hours for Year 2025 With Project traffic conditions (see Table 8).

C. Off-Site Mitigation Measures

The following study intersection improvement is recommended for Year 2025 With Project traffic conditions:

- Old River Road [West] (NS)/Camino Del Rey (EW) - #5
  - Convert existing "Y" intersection into a "T" intersection
  - Add an auxiliary lane at the west leg to allow two-stage movement from the minor street

The identified improvement is listed in the County of San Diego Transportation Impact Fee (TIF) program. The proposed project should contribute on a fair share basis through the adopted TIF program in the implementation of the recommended improvements.

D. On-Site/Site Adjacent Recommendations

Site-specific circulation and access recommendations are depicted on Figure 27.

Construct Gird Road along the project site boundary at its ultimate half-section width, including landscaping and parkway improvements in conjunction with development, as necessary and/or required by the County of San Diego Public Works Department.

The proposed project driveways should be stop-sign controlled for outbound vehicles. The proposed project driveway should be constructed in conformance with County of San Diego Public Works and Fire Department standards, including provisions for sight distance requirements. A northbound left-turn lane is recommended at the project driveway.

On-site traffic signing/striping and on-site parking should be provided in accordance with State requirements.

The project site plan, including internal roadway widths and access, should be reviewed by the County of San Diego Fire Department to ensure adequate emergency access is provided.

As is the case for any roadway design, the County of San Diego should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

I. INTRODUCTION

This section discusses the project location and proposed development and study area. Figure 1 shows the project location map and Figure 2 illustrates the project site plan.

A. Project Description

The project site is located on the west side of Gird Road approximately 1,500 feet north of State Route 76 (SR-76). The proposed project consists of developing the currently vacant project site with a high school for up to 1,500 students. Project access will be provided via a new driveway at Gird Road with on-site turn-around loop for pick-up/drop-off. The project is anticipated to open in Year 2021 with up to 500 students and reach ultimate buildout in Year 2025 with up to 1,500 students. For purposes of this analysis, the project is analyzed at ultimate buildout in Year 2025.

B. Study Area

Based on guidance contained in the SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region (March 2000) ["SANTEC/ITE Guidelines"], the study area consists of the following 11 study intersections:

Study Intersections	Jurisdiction
▪ SR-76 (NS) at Old River Road/East Vista Way (EW) - #1	Caltrans[1]
▪ SR-76 (NS) at North River Road (EW) - #2	Caltrans
▪ SR-76 (NS) at Olive Hill Road/Camino Del Rey (EW) - #3	Caltrans
▪ SR-76 (NS) at South Mission Road (EW) - #4	Caltrans
▪ Old River Road [West] (NS) at Camino Del Rey (EW) - #5	County
▪ Old River Road [East] (NS) at Camino Del Rey (EW) - #6	County
▪ Lilac Road (NS) at Camino Del Rey (EW) - #7	County
▪ SR-76 (NS) at Via Monserate (EW) - #8	Caltrans
▪ Gird Road (NS) at Knottwood Way (EW) - #9	County
▪ Gird Road (NS) at SR-76 (EW) - #10	Caltrans
▪ Old Highway 395 (NS) at SR-76 (EW) - #11	Caltrans

C. Analysis Scenarios

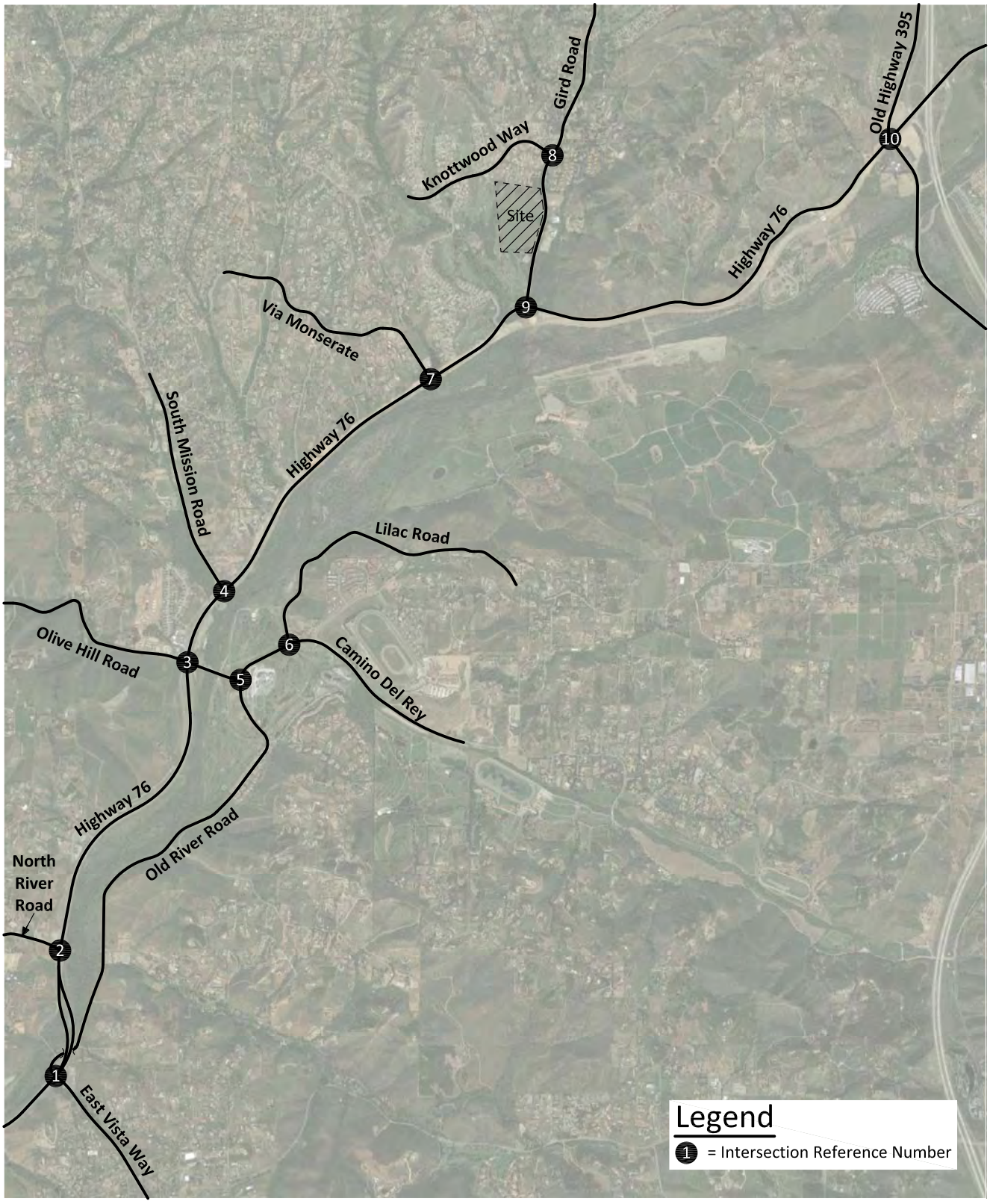
Based on SANTEC/ITE Guidelines, the following four scenarios are analyzed:

- Existing Conditions;
- Existing Plus Project Conditions[2];
- Year 2025 Without Project Conditions (Existing Plus Cumulative); and
- Year 2025 With Project Conditions (Existing Plus Cumulative Plus Project).

[1] (NS) = North-South Roadway; (EW) = East-West Roadway; Caltrans = California Department of Transportation

[2] The existing plus project conditions has been analyzed to comply with the Sunnyvale West Neighborhood Association v. City of Sunnyvale CEQA court case. This scenario assumes the full development of the proposed project and full absorption of the proposed project trips on the circulation system at the present time.

Figure 1
Project Location Map



KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 2
Site Plan

Source: BakerNowicki design studio

JN 6497

II. METHODOLOGY

This study has been prepared in accordance with guidance contained in the Guidelines for Determining Significance (County of San Diego, August 2011) ["County Guidelines"] and Guide for the Preparation of Traffic Impact Studies (State of California, 2002) ["Caltrans Guidelines"].

A. Intersection Analysis Methodology

To assess the performance of an intersection, both the County of San Diego and Caltrans use the intersection delay method based on the procedures contained in the Highway Capacity Manual (Transportation Research Board, 2010). The methodology compares the volume of traffic using the intersection to the capacity of the intersection to calculate the delay associated with the traffic control at the intersection. The intersection control delay is then correlated to a performance measure known as Level of Service based on the following thresholds:

Level of Service	Intersection Control Delay (Seconds / Vehicle)	
	Signalized	Unsignalized
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

Source: Highway Capacity Manual (Transportation Research Board, 2010).

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). Per the Highway Capacity Manual, Level of Service is based on the weighted average delay of the overall intersection for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual movement.

B. Performance Targets

The County of San Diego has established Level of Service D as the baseline goal for acceptable Level of Service on a roadway or intersection. Roadway facilities operating at Level of Service E or F are considered deficient.

The Transportation Concept Report for State Route 76 (California Department of Transportation, February 2016) has deemed Level of Service E as acceptable for SR-76.

C. Thresholds of Significance - County of San Diego

A County of San Diego study intersection is considered to be significantly impacted if the addition of project-generated trips results in one of the following conditions:

Level of Service	Signalized	Unsignalized
E	> 2 seconds delay increase	> 20 peak hour trips on a critical movement
F	> 1 second delay increase, or > 5 peak hour trips on a critical movement	> 5 peak hour trips on a critical movement

Source: Guidelines for Determining Significance (County of San Diego, August 2011).

If a project is forecast to cause a significant impact, feasible mitigation measures should be identified that will reduce the impact to a less than significant level. Mitigation measures can be in many forms, including the addition of lanes, traffic control modification, or demand management measures. If no feasible mitigation measures can be identified for a significantly impacted facility, the impact will remain significant and unavoidable.

D. Thresholds of Significance - Caltrans

Based on the target Level of Service E for State Route 76, a project traffic impact is considered significant if the addition of project-generated trips causes or worsens Level of Service F at a study intersection located on SR-76.

III. EXISTING CONDITIONS

A. Existing Roadway System

Figure 3 identifies the existing number of through lanes, intersection traffic controls, and intersection geometry based on a field survey of the study area. Regional access to the project area is provided by State Route 76. Local access is provided by Old River Road, East Vista Way, North River Road, Olive Hill Road, Camino Del Rey, Lilac Road, South Mission Road, Via Monserate, Gird Road, and Old Highway 395.

State Route 76 (SR-76): SR-76 originates in Oceanside near the I-5 Freeway and terminates at the junction with State Route 79 in the North Mountain region east of Pala/Pauma Valley. This east-west route is generally four lanes divided between Old River Road/East Vista Way and Olive Hill Road/Camino Del Rey; six lanes divided between Olive Hill Road/Camino Del Rey and South Mission Road; and generally two lanes undivided between South Mission Road and Old Highway 395 with intermittent left-turn turn lanes. SR-76 is currently classified as a Prime Arterial roadway west of South Mission Road and a Major Road east of South Mission Road in the County of San Diego Mobility Element. There are generally no existing sidewalks or designated bicycle facilities on SR-76 within the study area; on-street parking is prohibited.

Old River Road: This two lane undivided roadway is currently classified as a Prime Arterial roadway in the County of San Diego Mobility Element and generally trends in a north-south orientation within the study area. There are generally no existing sidewalks or designated bicycle facilities on Old River Road within the study area; on-street parking is prohibited.

East Vista Way: This two lane divided roadway is currently classified as a Major Road in the County of San Diego Mobility Element and generally trends in a north-south orientation within the study area. There are generally no existing sidewalks or designated bicycle facilities on East Vista Way within the study area; on-street parking is prohibited.

North River Road: This two lane undivided roadway is currently classified as a Major Road in the County of San Diego Mobility Element and generally trends in an east-west orientation within the study area. There are generally no existing sidewalks or designated facilities on North River Road within the study area; on-street parking is prohibited.

Olive Hill Road: This two lane undivided roadway is currently classified as a Light Collector roadway in the County of San Diego Mobility Element and generally trends in an east-west orientation within the study area. There are generally no existing sidewalks or designated bicycle facilities on Olive Hill Road within the study area; on-street parking is prohibited.

Camino Del Rey: This two lane undivided roadway is currently classified as a Boulevard Series roadway in the County of San Diego Mobility Element and generally trends in an east-west orientation within the study area. There are generally no existing sidewalks or designated bicycle facilities on Camino Del Rey within the study area; on-street parking is prohibited.

Lilac Road: This two lane undivided roadway is currently classified as a Light Collector roadway in the County of San Diego Mobility Element and generally trends in an east-west orientation within the study area. There are generally no existing sidewalks or designated bicycle facilities on Lilac Road within the study area; on-street parking is prohibited.

South Mission Road: This four lane divided roadway is currently classified as a Minor Collector roadway in the County of San Diego Mobility Element and generally trends in a north-south direction within the study area. There are generally no existing sidewalks or designated bicycle facilities on South Mission Road within the study area; on-street parking is prohibited.

Via Monserate: This two lane undivided roadway is currently classified as a Minor Collector roadway in the County of San Diego Mobility Element and generally trends in a north-south orientation within the study area. There are generally no existing sidewalks or designated bicycle facilities on Via Monserate within the study area; on-street parking is prohibited.

Gird Road: This two lane undivided roadway is currently classified as a Light Collector roadway in the County of San Diego Mobility Element and generally trends in a north-south orientation within the study area. There are generally no existing sidewalks or designated bicycle facilities on Gird Road within the study area; on-street parking is prohibited.

Old Highway 395: This two lane undivided roadway is currently classified as a Boulevard Series roadway north of SR-76 and a Community Collector roadway south of SR-76 in the County of San Diego Mobility Element. Old Highway 395 generally trends in a north-south orientation within the study area. There are generally no existing sidewalks or designated bicycle facilities on Old Highway 395 within the study area; on-street parking is prohibited.

B. Existing Traffic Volumes

Existing peak hour traffic volumes are based upon morning peak period and evening peak period intersection turning movement counts conducted in May/June 2016 during typical weekday conditions. Typically, there are two peak periods in a weekday; the morning peak period was counted between 7:00 AM and 9:00 AM and the evening peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the peak period is the four consecutive 15-minute periods with the highest total volume when all movements are added together. Thus, the weekday evening peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15-minute periods have the highest combined volume. Traffic counts obtained in June were increased as necessary based on flow conservation principles to account for seasonal adjustments representative of local school traffic patterns. Traffic count worksheets are provided in Appendix B.

The existing average daily traffic volumes are provided for informational purposes and have been obtained from the Caltrans Traffic Census Program for the latest available year (2014) or factored from peak hour volumes using the following formula for each intersection leg:

PM Peak Hour (Approach Volume + Exit Volume) x 11.5 = Average Daily Traffic (ADT).

The peak hour to daily factor (11.5) was derived from the ratio of measured daily traffic counts to peak hour counts obtained from the Caltrans Traffic Census Program.

Figure 4 depicts the existing average daily traffic volumes. Figure 5 and Figure 6 show the existing morning peak hour and evening peak hour intersection turning movement volumes, respectively.

C. Existing Intersection Delay and Level of Service

The morning and evening peak hour Levels of Service for existing traffic conditions have been calculated and are shown in Table 1. As shown in Table 1, the study area intersections currently operate within acceptable Levels of Service during the peak hours for existing traffic conditions, with the exception of the intersection of SR-76/Via Monserate, which is currently operating at Level of Service F during both the morning and evening peak hours.

Existing Level of Service has been calculated based on optimized traffic signal timing between 60 and 120 seconds. Existing traffic signal timing cycle lengths have been maintained throughout this analysis and split times have been optimized as appropriate to account for signal actuation. Existing Level of Service worksheets are provided in Appendix C.

D. County of San Diego General Plan Circulation Element

Figure 7 and Figure 8 show the County of San Diego Mobility Element Network for the Bonsall and Fallbrook regions, respectively. These figures show the nature and extent of arterial highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. The County of San Diego public roadway cross-sections are illustrated on Figure 9.

The County of San Diego Bicycle Master Plan for the Bonsall and Fallbrook regions are shown on Figure 10 and Figure 11, respectively.

E. Existing Transit Service, Pedestrian, and Bicycle Facilities

Existing pedestrian and bicycle facilities in the vicinity of the project site are shown on Figure 12. As shown on Figure 12, there are generally no existing sidewalks or designated bicycle facilities in the project vicinity. The existing transit routes provided within the study area are shown on Figure 13. The study area is currently served by North County Transit District Route 306 along SR-76/South Mission Road; however, no transit routes/stops are located within 1/4-mile of the project site. There is an existing Park-and-Ride lot located near the southeast corner of Old Highway 395 and SR-76.

Table 1

Existing Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
SR-76 (NS) at:																
Old River Road/East Vista Way (EW) - #1	Caltrans	TS	1	3	1	2	3	d	0.5	1	0.5	1.5	0.5	1>	25.1-C	38.3-D
North River Road (EW) - #2	Caltrans	TS	1	2	0	0	2	1	1	0	1	0	0	0	18.3-B	12.8-B
Olive Hill Road/Camino Del Rey (EW) - #3	Caltrans	TS	1	3	1	2	3	1	2	1	1	1	1	1>	33.0-C	36.1-D
South Mission Road (EW) - #4	Caltrans	TS	2	2	0	1	2	1	2	0	2	0	0	0	25.9-C	20.6-C
Old River Road [West] (NS) at:																
Camino Del Rey (EW) - #5	County	CSS	0.5	0	0.5	0	0	0	0	0.5	0.5	0.5	0.5	0	23.8-C	20.7-C
Old River Road [East] (NS) at:																
Camino Del Rey (EW) - #6	County	CSS	0.5	0	0.5	0	0	0	0	0.5	0.5	0.5	0.5	0	12.0-B	10.8-B
Lilac Road (NS) at:																
Camino Del Rey (EW) - #7	County	CSS	0	0	0	1	0	1	0.5	0.5	0	0	1	d	22.4-C	19.3-C
SR-76 (NS) at:																
Via Monserate (EW) - #8	Caltrans	CSS	1	1	0	0	0.5	0..5	1	0	1	0	0	0	100.9-F	114.5-F
Gird Road (NS) at:																
Knottwood Way (EW) - #9	County	CSS	1	1	0	0	0.5	0.5	1	0	1	0	0	0	9.9-A	10.3-B
SR-76 (EW) - #10	Caltrans	TS	0	0	0	1	0	1	1	1	0	0	0.5	0.5	15.4-B	15.2-B
Old Highway 395 (NS) at:																
SR-76 (EW) - #11	Caltrans	TS	0.3	0.3	1.3	0.3	0.3	0.3	1	1.5	0.5	1	1.5	0.5	20.3-C	39.9-D

[1] When a right turn lane is designated, the lane can either be striped or unstriped (de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = De Facto Right; > = Right Turn Overlap

[2] Delay and Level of Service (LOS) has been calculated using the following analysis software: Synchro, Version 9. Per the Highway Capacity Manual, Level of Service is based on the weighted average delay of the overall intersection for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual movement.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Figure 3
Existing Through Travel Lanes and Intersection Controls

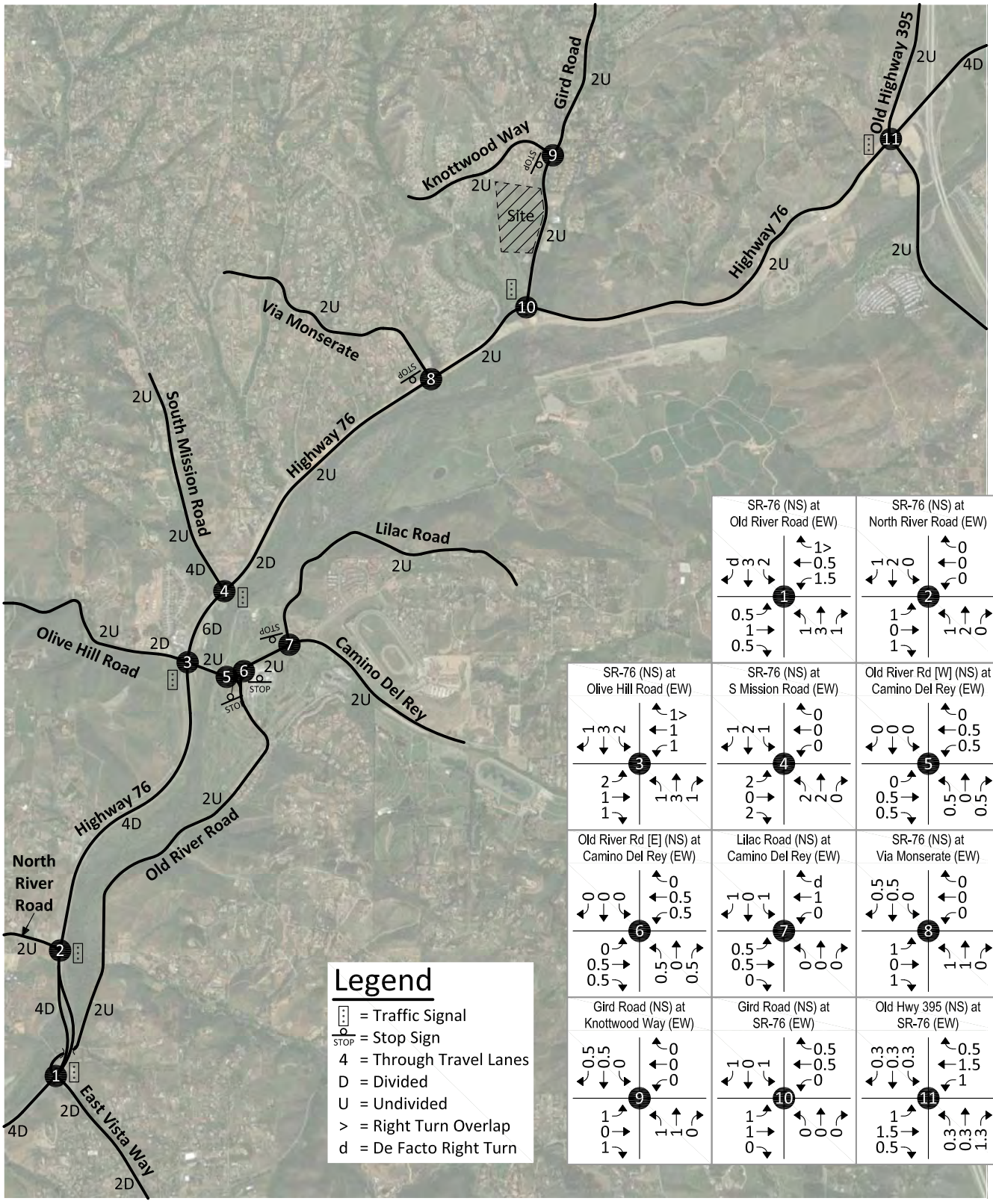
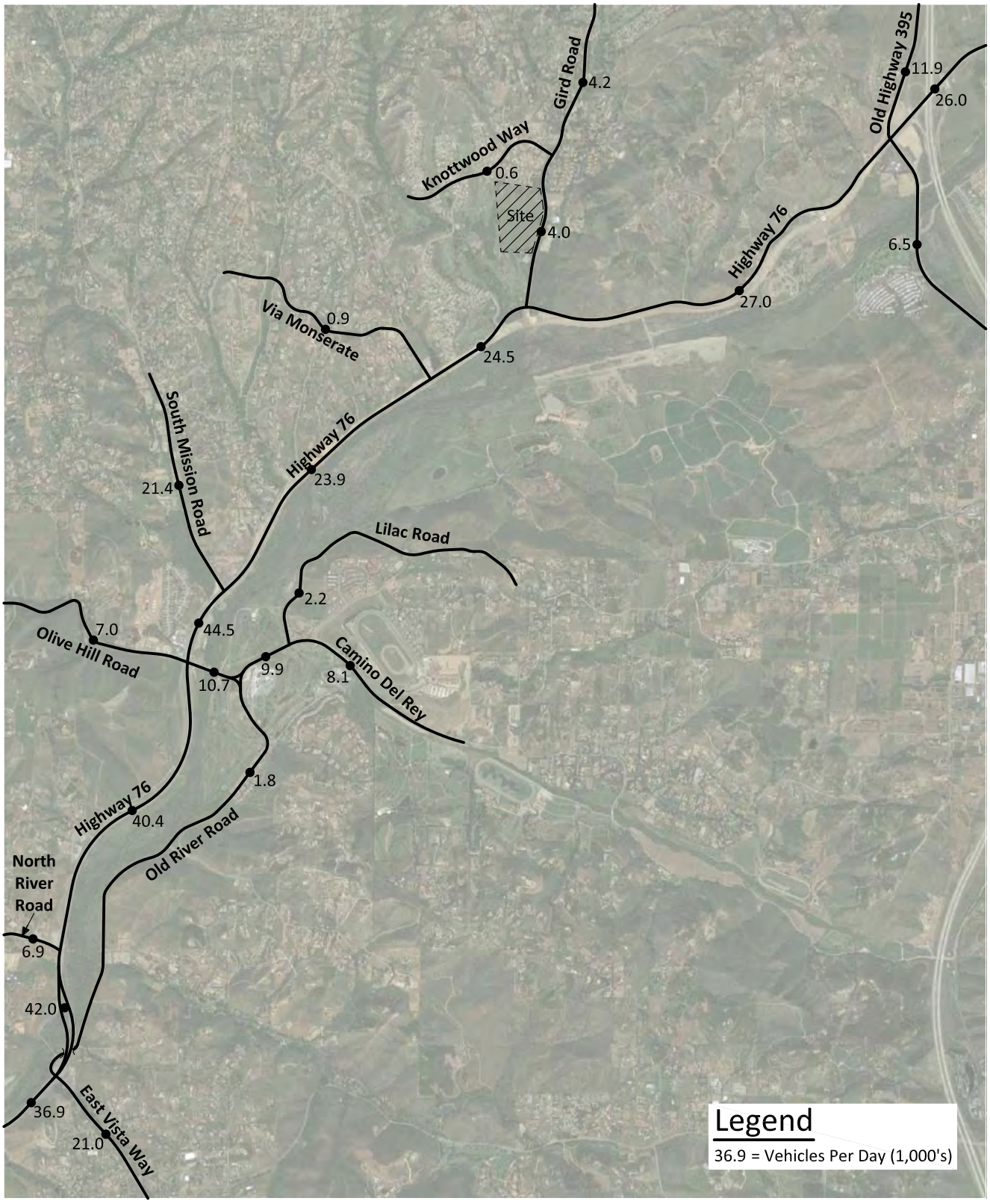


Figure 4
Existing Average Daily Traffic Volumes

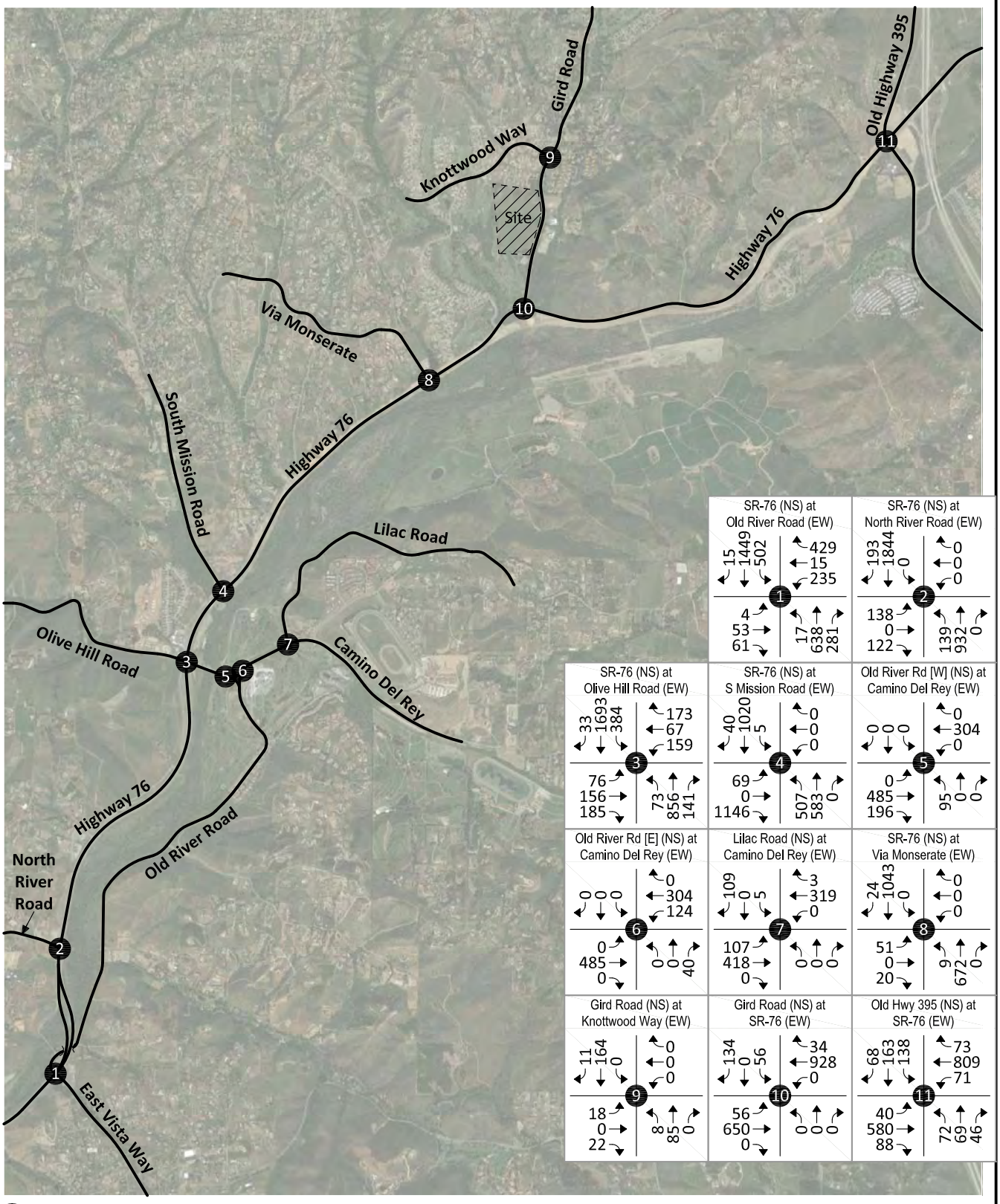


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 5
Existing Morning Peak Hour Intersection Turning Movement Volumes

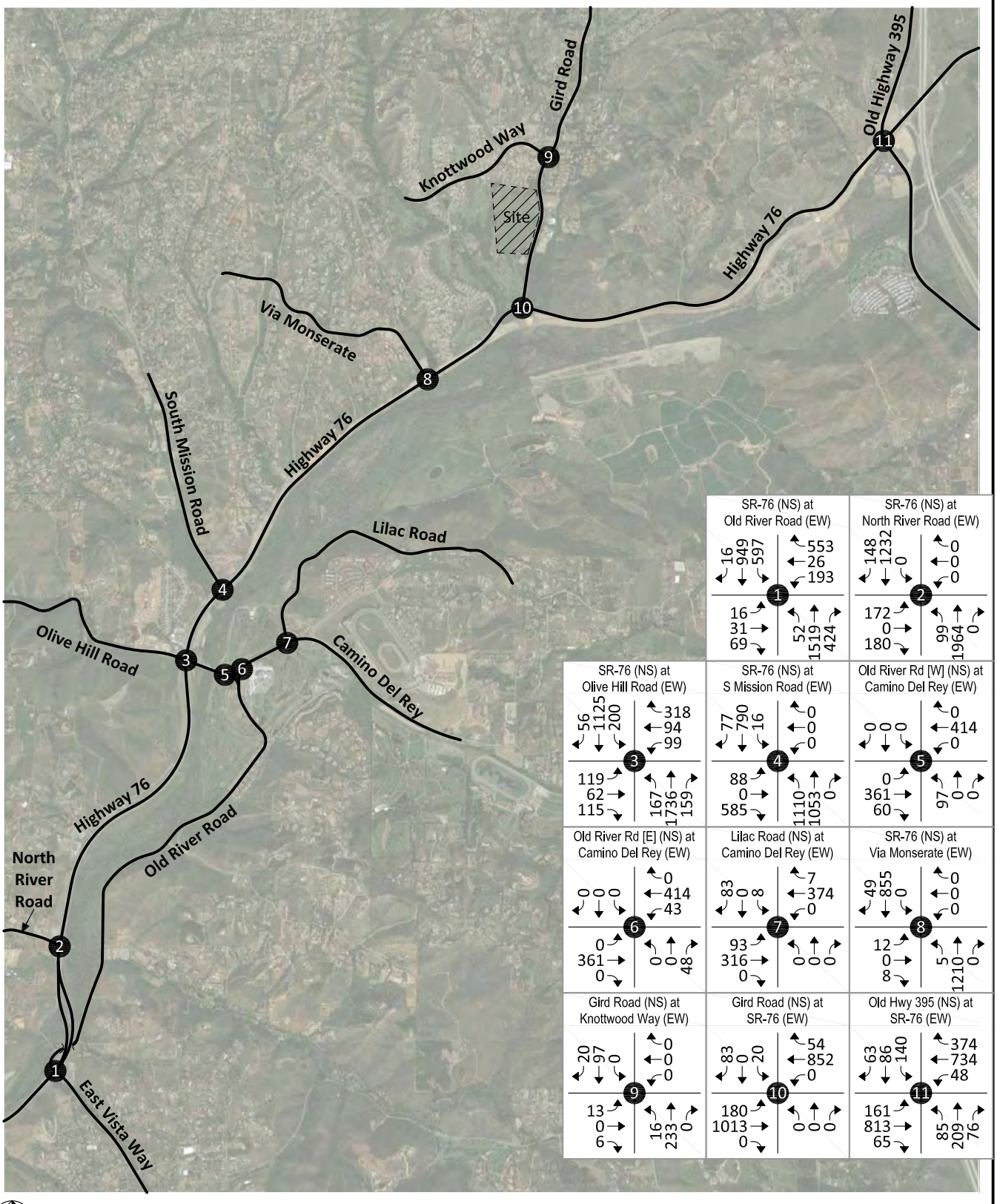


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6497

Figure 6
Existing Evening Peak Hour Intersection Turning Movement Volumes

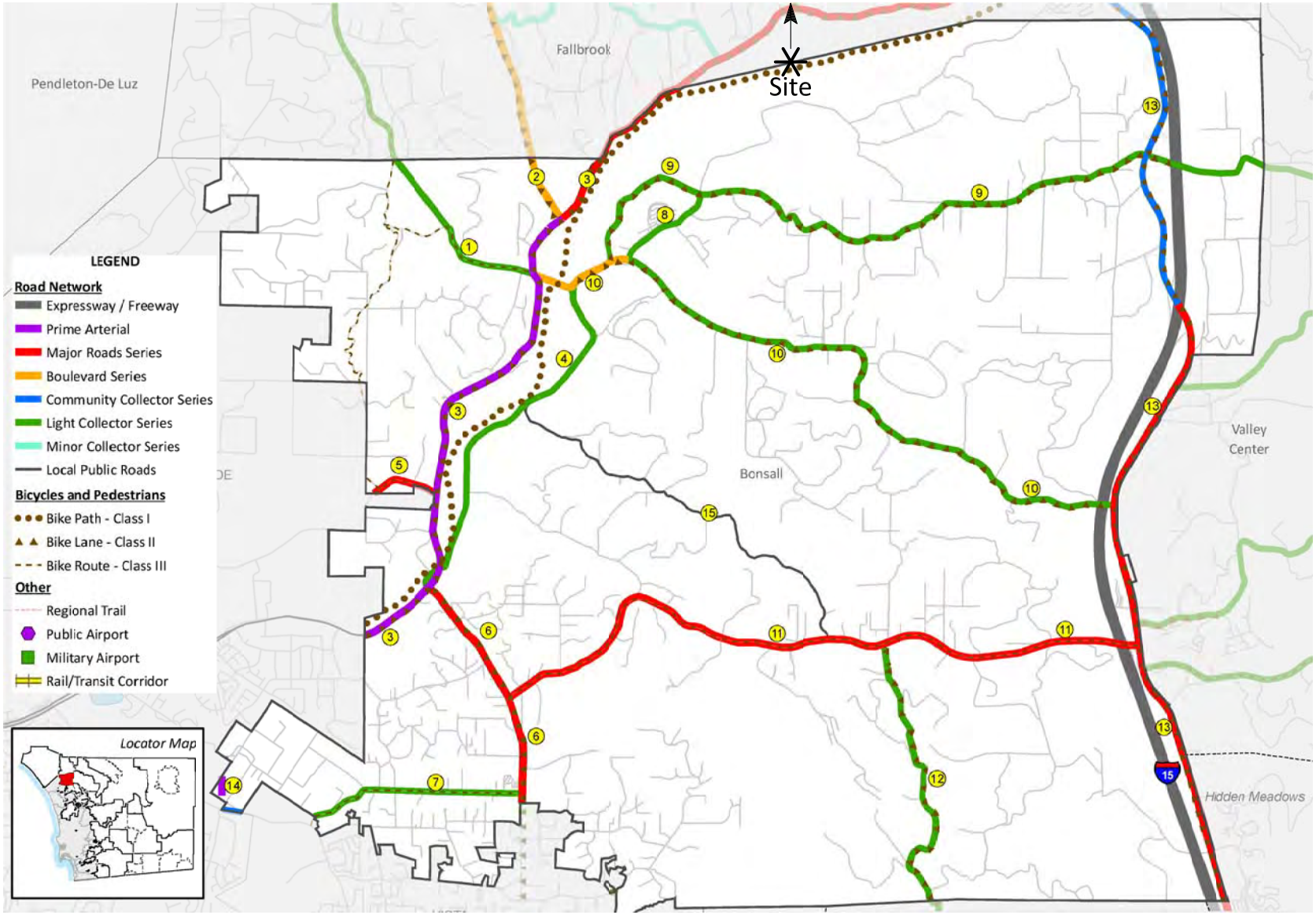


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

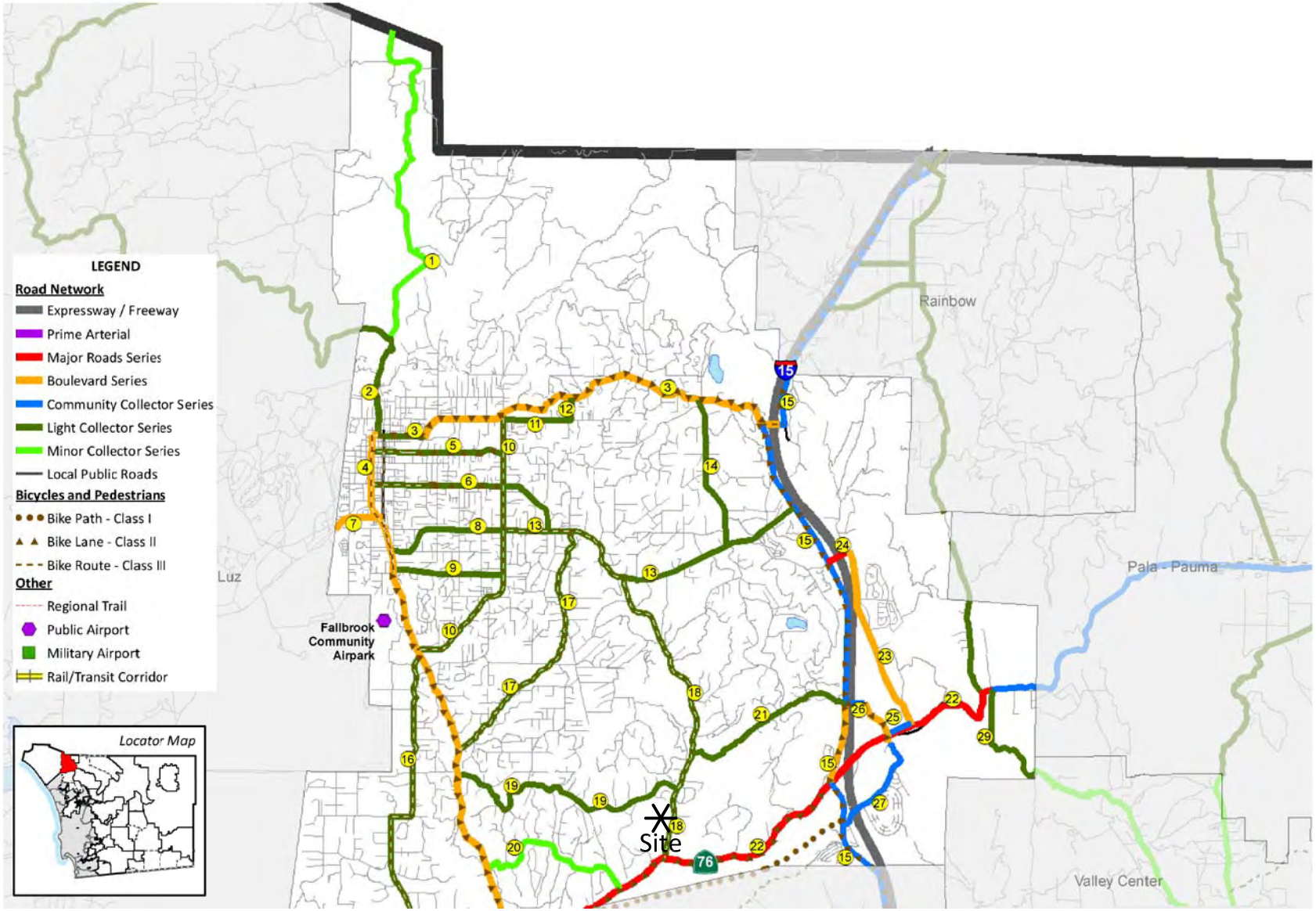
Figure 7
County of San Diego Mobility Element Network (Bonsall)



Source: County of San Diego

JN 6497

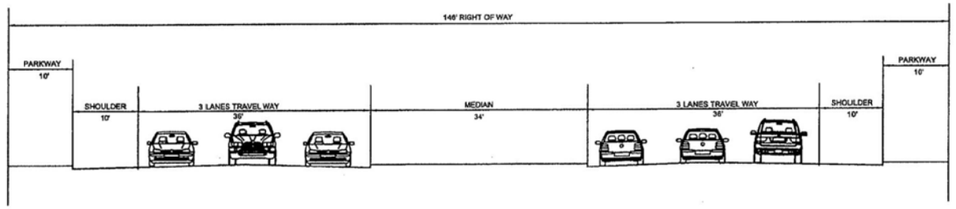
Figure 8
County of San Diego Mobility Element Network (Fallbrook)



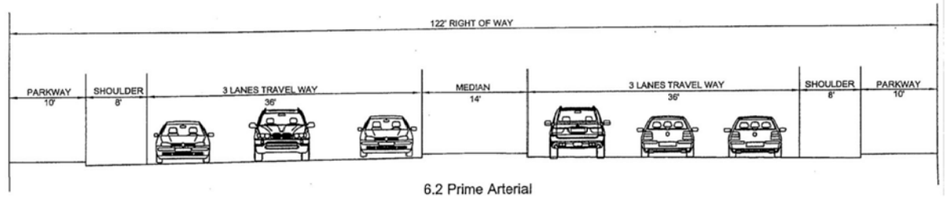
Source: County of San Diego

JN 6497

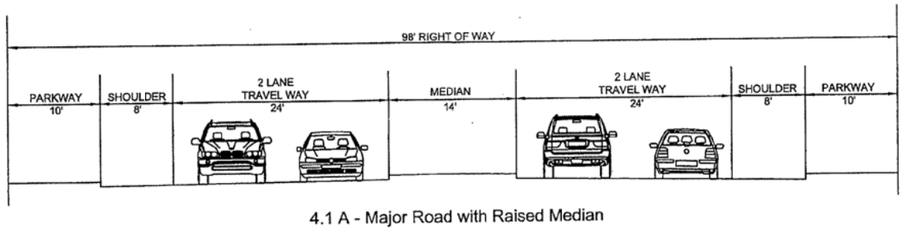
Figure 9
County of San Diego Public Roadway Cross-Sections



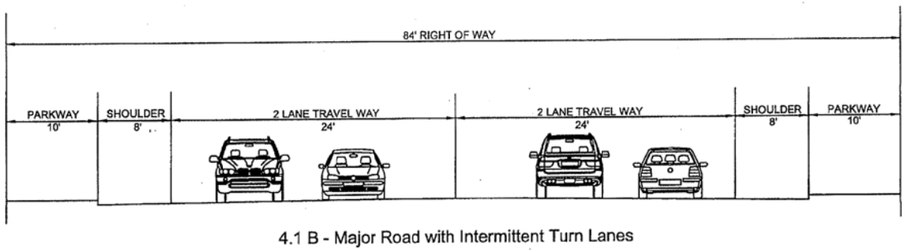
6.1 Expressway



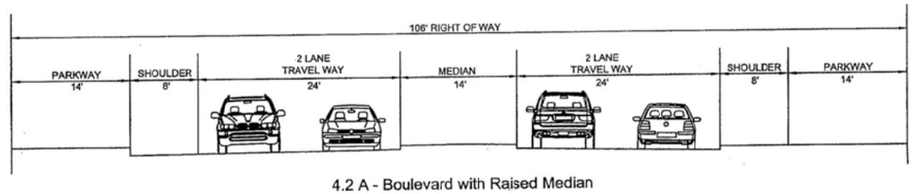
6.2 Prime Arterial



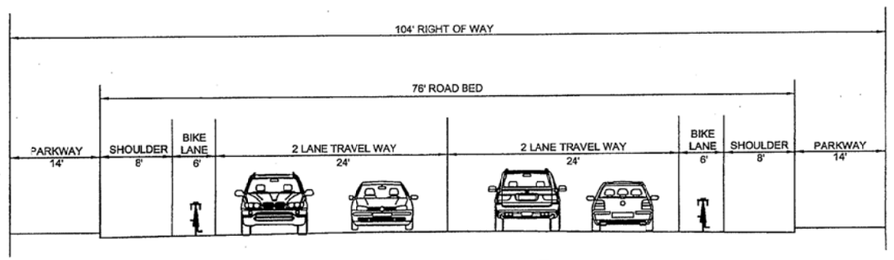
4.1 A - Major Road with Raised Median



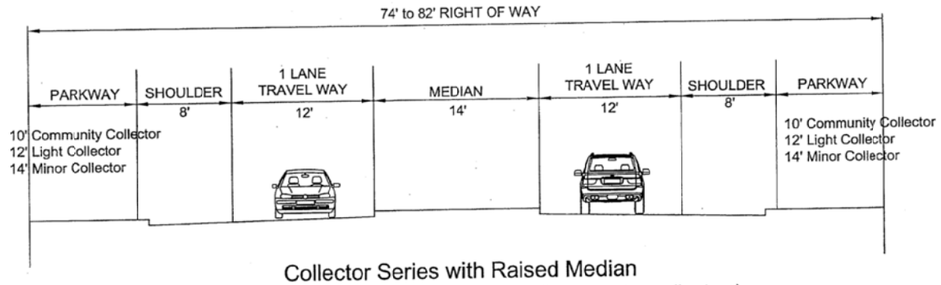
4.1 B - Major Road with Intermittent Turn Lanes



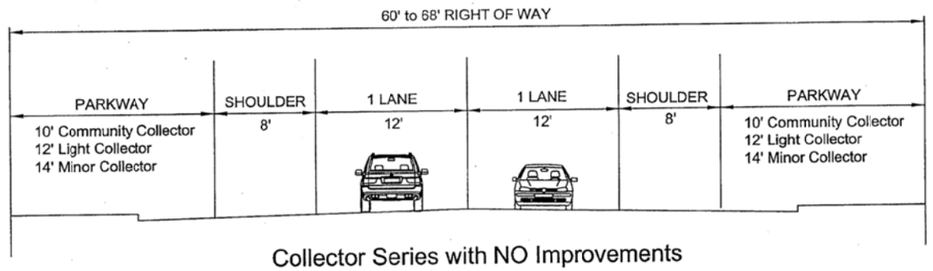
4.2 A - Boulevard with Raised Median



4.2 B - Boulevard with Intermittent Turn Lane
(ROW increases to 118' to accommodate dedicated turn lanes at intersections)



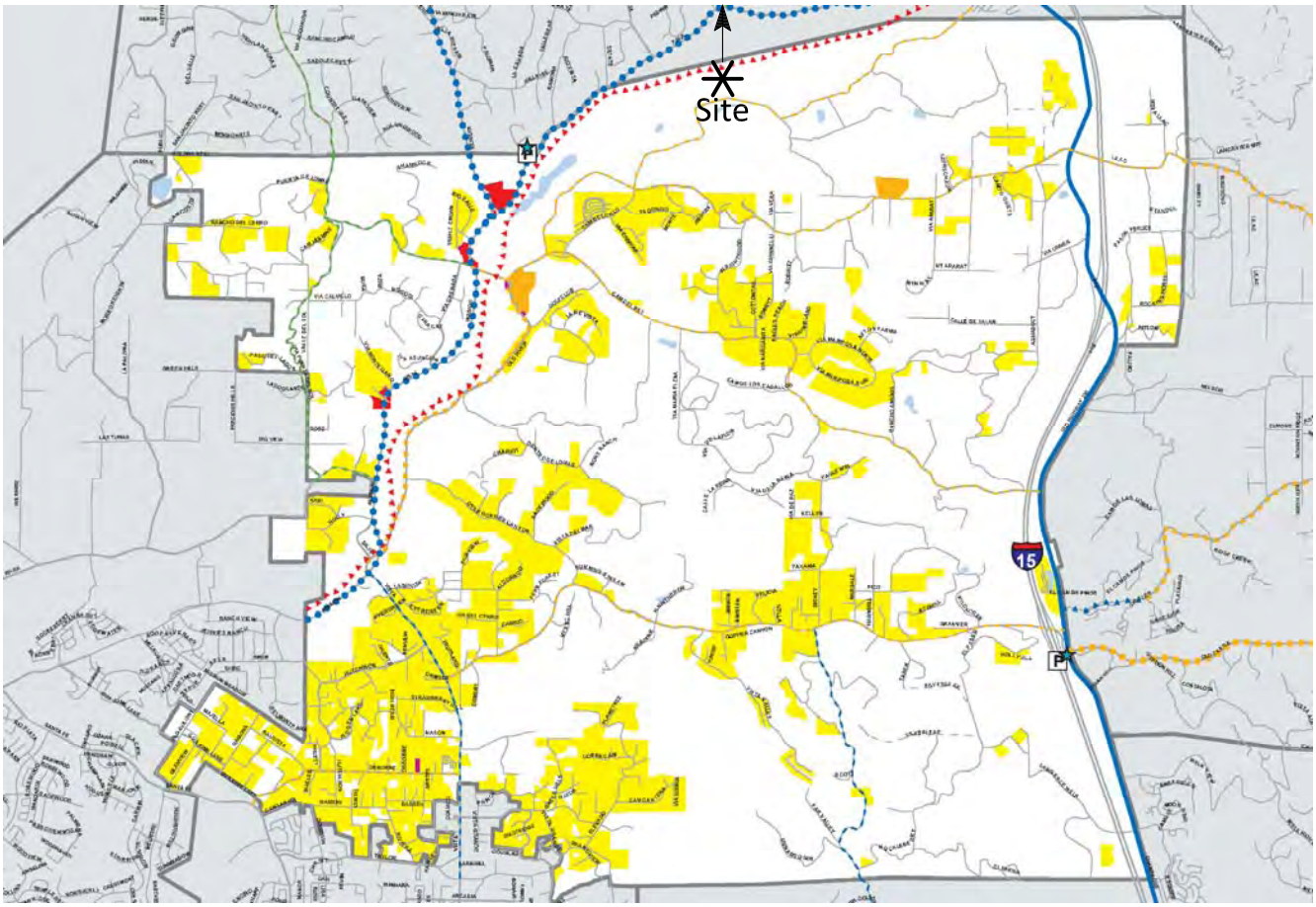
Collector Series with Raised Median
(Cross Section with Continuous Turn Lane, is similar except for median type)



Collector Series with NO Improvements
[Cross section with Intermittent Turn Lanes is similar except at intersections, which contain a 14' dedicated turn lane that produces a wider ROW]

Source: County of San Diego

Figure 10
County of San Diego Bikeway Master Plan (Bonsall)



Legend

- Park and Ride
- Proposed Bicycle Parking

Bikeway Class - Priority

- PATH - 1
- PATH - 2
- PATH - 3
- LANE - 1
- LANE - 2
- LANE - 3
- ROUTE - 1
- ROUTE - 2
- ROUTE - 3
- Share the Road Corridor - 1
- Share the Road Corridor - 2
- Share the Road Corridor - 3

Existing Bikeway Description

- Bike PATH
- Bike LANE
- Bike Route
- Share the Road Corridor

Roads

- minor
- major
- unpaved
- Streams

Community Planning Area

- Other Community Planning Areas
- Target Community Planning Area
- Residential
- Shopping Centers
- Public Buildings
- Major Employment Centers
- Schools
- Parks
- Water Bodies

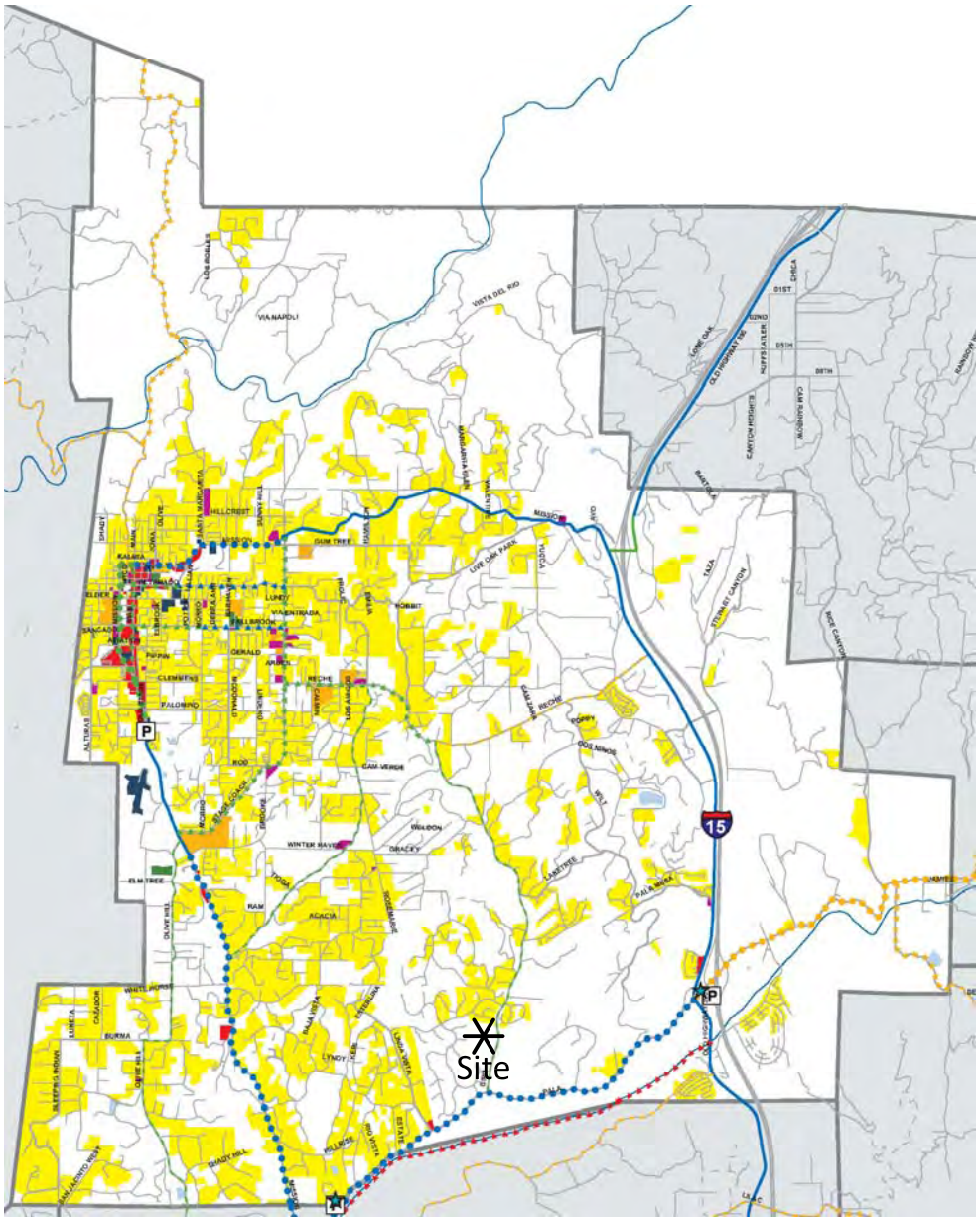
KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

Source: County of San Diego

JN 6497

Figure 11
County of San Diego Bikeway Master Plan (Fallbrook)



Legend

- Park and Ride
- Proposed Bicycle Parking

Bikeway Class - Priority

- PATH - 1
- PATH - 2
- PATH - 3
- LANE - 1
- LANE - 2
- LANE - 3
- ROUTE - 1
- ROUTE - 2
- ROUTE - 3
- Share the Road Corridor - 1
- Share the Road Corridor - 2
- Share the Road Corridor - 3

Existing Bikeway Description

- Bike PATH
- Bike LANE
- Bike Route
- Share the Road Corridor

Roads

- minor
- major
- unpaved
- Streams

Community Planning Area

- Other Community Planning Areas
- Target Community Planning Area
- Residential
- Shopping Centers
- Public Buildings
- Major Employment Centers
- Schools
- Parks
- Water Bodies

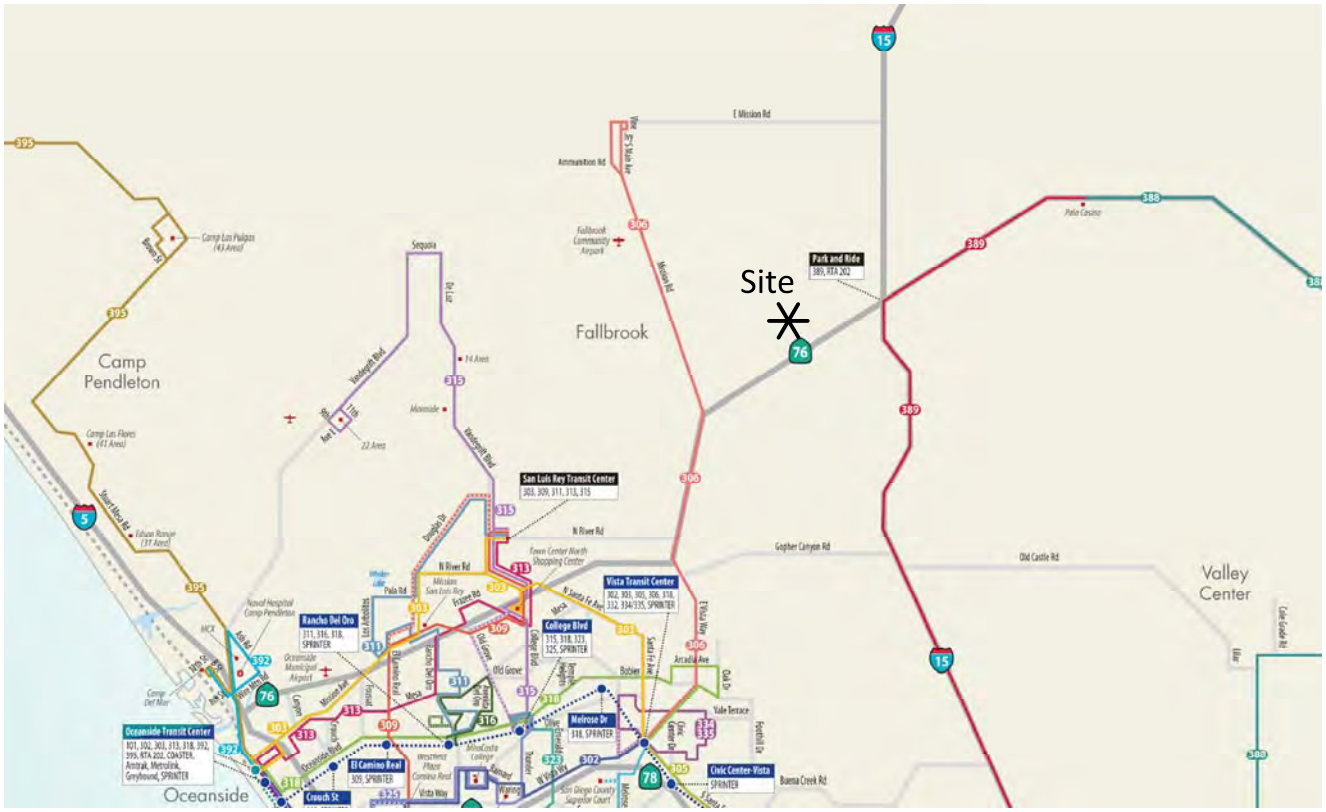
KUNZMAN ASSOCIATES, INC.
OVER 40 YEARS OF EXCELLENT SERVICE

Source: County of San Diego

JN 6497

Figure 12
Existing Pedestrian and Bicycle Facilities

Figure 13
County of San Diego Transit Routes



Legend

Source: North County Transit District

IV. PROJECT TRIPS

A. Trip Generation

Table 2 shows the project trip generation based upon rates obtained from Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, San Diego Association of Governments (SANDAG), April 2002. Trip generation rates were determined for daily trips, morning peak hour inbound and outbound trips, and evening peak hour inbound and outbound trips for the proposed land use. The number of trips forecast to be generated by the proposed project are determined by multiplying the trip generation rates by the land use quantity.

As shown in Table 2, the proposed project is forecast to generate approximately 1,950 daily trips, 390 trips of which will occur during the morning peak hour and 195 trips of which will occur during the evening peak hour.

B. Trip Distribution

Figure 14 shows the forecast directional distribution of the project trips. The forecast project trip distribution is based on review of the high school attendance boundary, existing traffic data, surrounding land uses, and the local and regional roadway facilities in the project vicinity. Appendix D contains the attendance boundary map for the proposed high school.

C. Trip Assignment

Based on the identified trip generation and distribution, project average daily traffic volumes have been calculated and shown on Figure 15. Morning and evening peak hour intersection turning movement volumes expected from the project are shown on Figure 16 and Figure 17, respectively.

Table 2

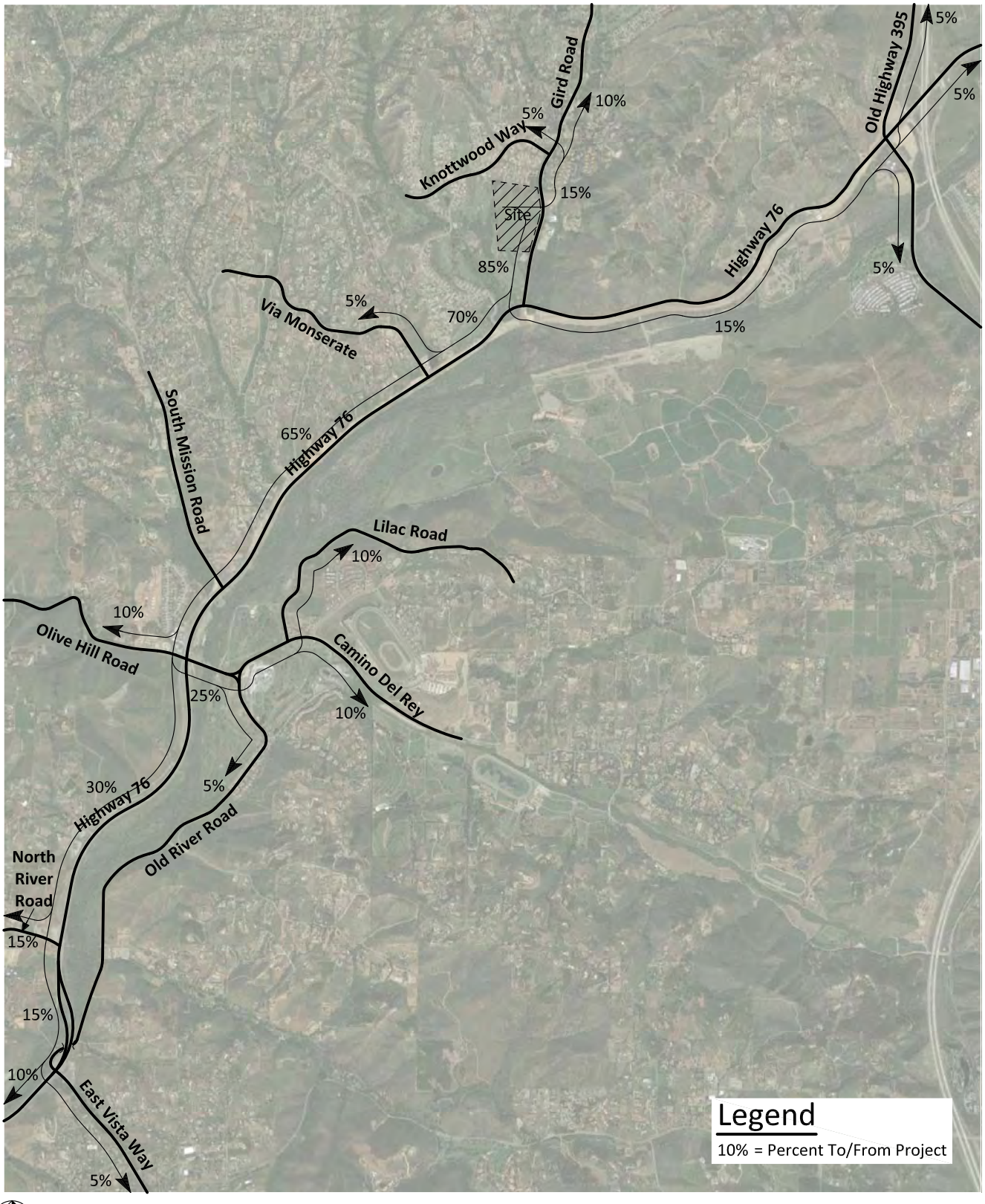
Project Trip Generation

Land Use	Quantity	Units[2]	Trips Per Unit/Trips Generated[1]						
			Morning Peak Hour			Evening Peak Hour			
			In	Out	Total	In	Out	Total	Daily
Trip Generation Rates									
High School	1	ST	0.18	0.08	0.26	0.05	0.08	0.13	1.30
Year 2021 Trips Generated									
High School	500	ST	90	40	130	25	40	65	650
Year 2025 Trips Generated									
High School	1,500	ST	270	120	390	75	120	195	1,950

[1] Source: Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, San Diego Association of Governments (SANDAG), April 2002.

[2] ST = Students

Figure 14
Project Trip Distribution

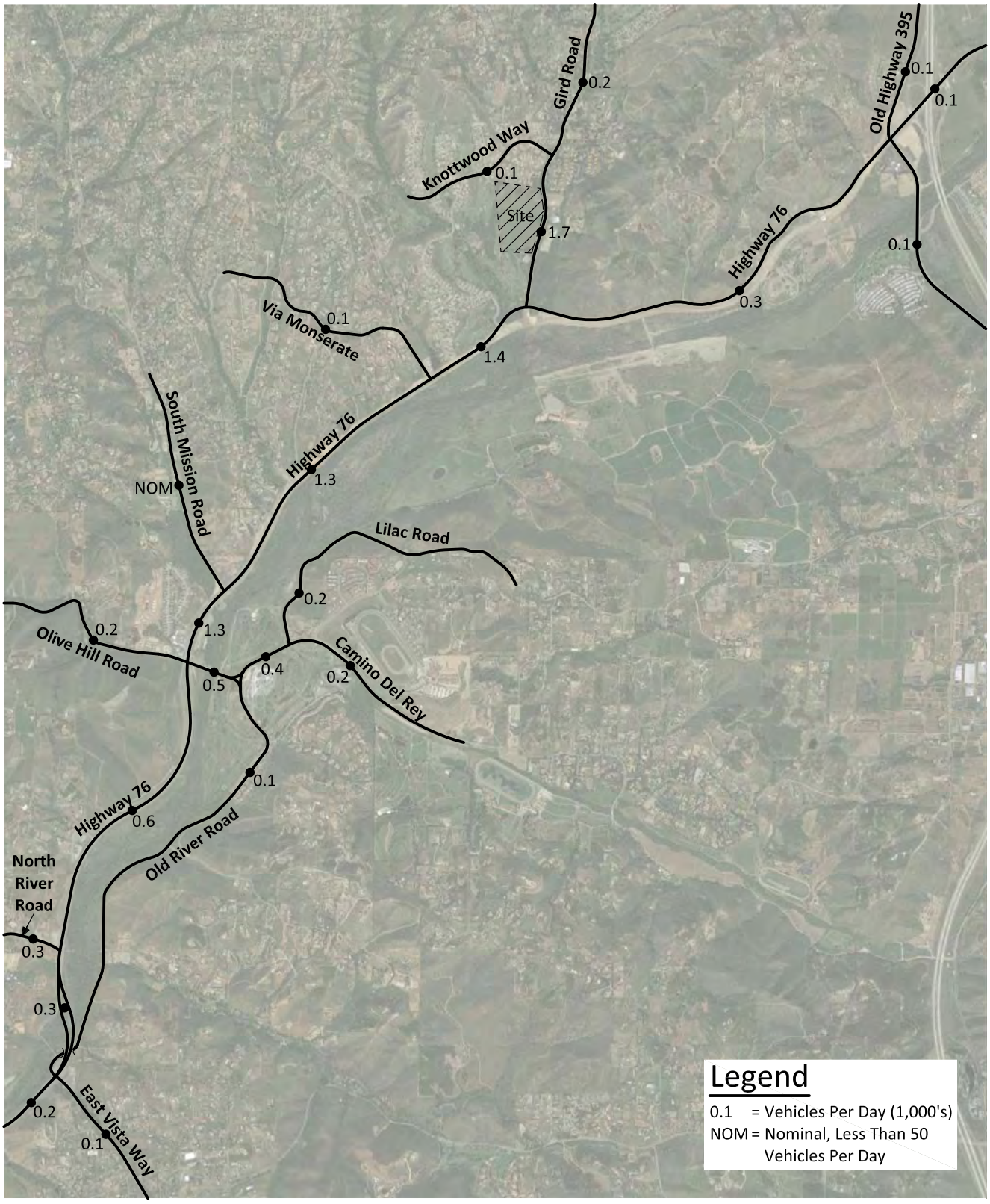


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 15
Project Average Daily Traffic Volumes

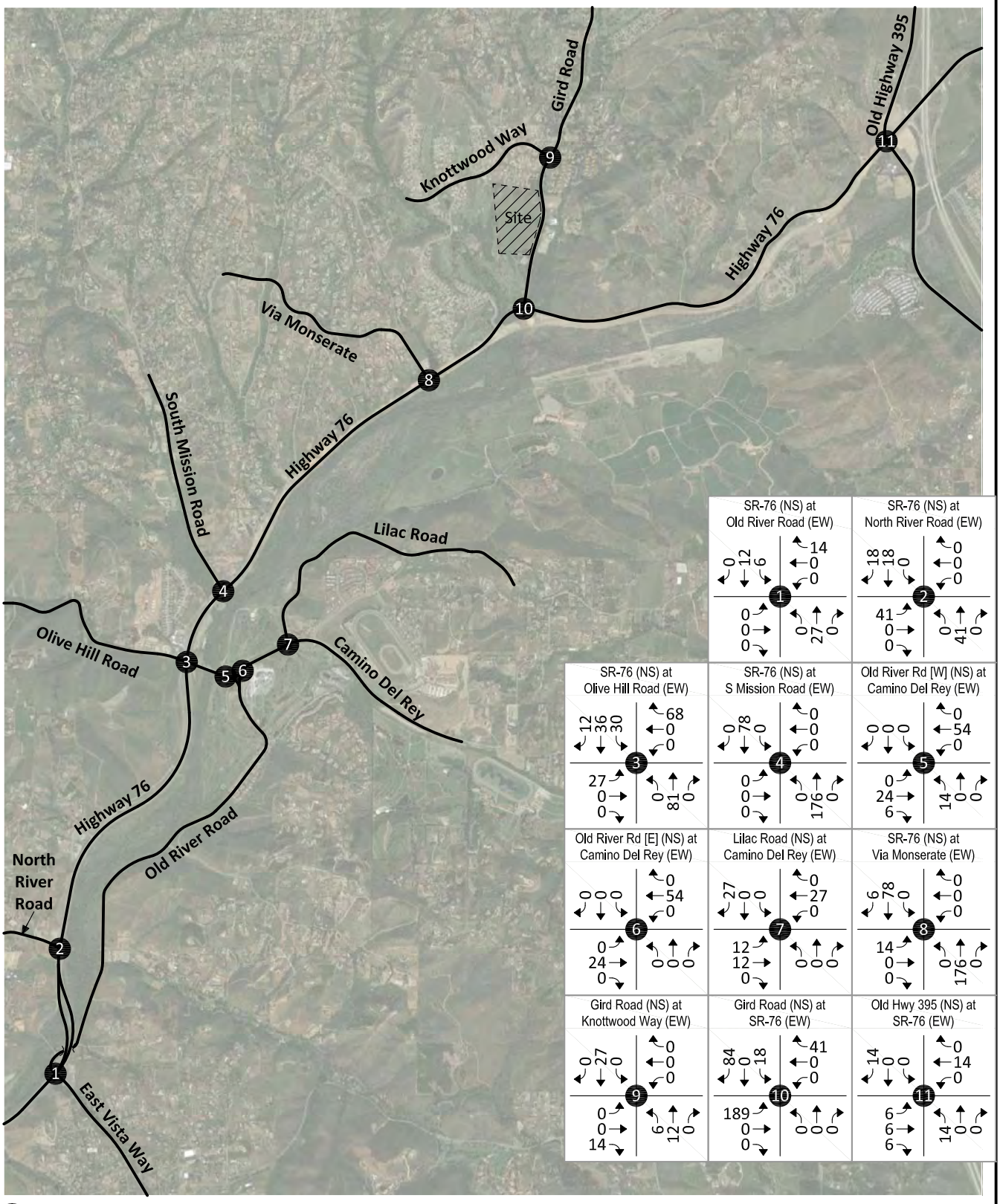


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 16
Project Morning Peak Hour Intersection Turning Movement Volumes

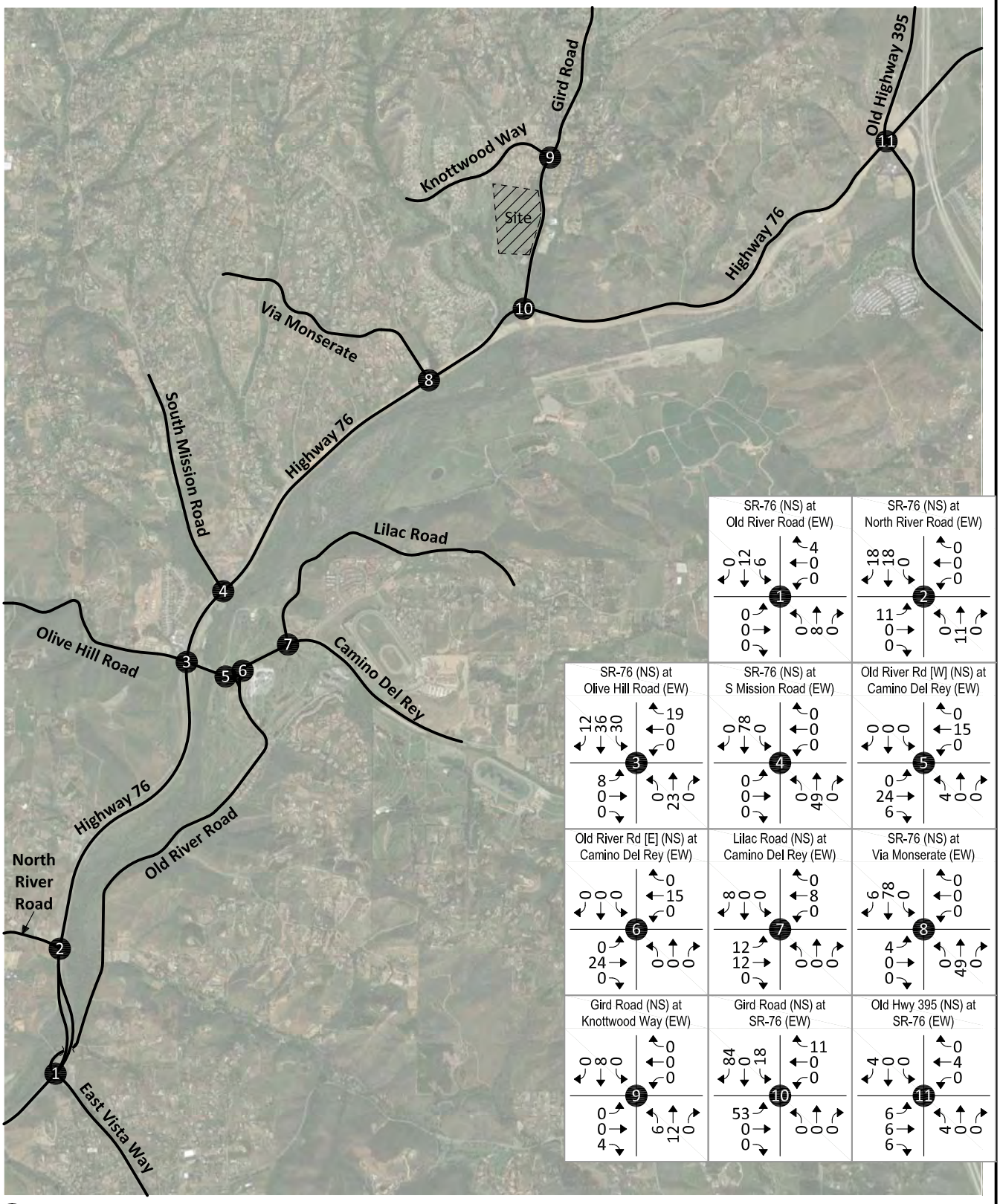


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 17
Project Evening Peak Hour Intersection Turning Movement Volumes



KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

V. FUTURE TRAFFIC VOLUMES

A. Method of Projection

To assess future traffic conditions, existing traffic is combined with project trips, ambient growth, and trips generated by other developments. For purposes of this analysis, the project is analyzed at ultimate buildout in Year 2025. This is a conservative assumption since additional years of background traffic growth are included for Year 2025 Without/With Project traffic conditins.

1. Ambient Growth

Existing traffic volumes were increased by approximately two percent per year over a nine year period to account for ambient traffic growth. This is a conservative assumption since the ambient growth rate was applied to all movements at the study intersections. The ambient growth rate was derived based on the average growth rate per year noted in the Transportation Concept Report for State Route 76 (Caltrans, February 2016).

2. Other Development

A list of other development projects was obtained from the County of San Diego Planning and Development Services self-service report for Newly Created Building Records within the past 5 years. The full list included a total of 209 records from which open and issued building permits were reviewed for inclusion in this analysis, as appropriate.

To derive trips associated with cumulative projects, future trips forecast to be generated by other developments were calculated and assigned to the study area, as applicable. The list of other developments and trip generation forecasts are contained in Appendix E.

B. Future Traffic Volumes

1. Existing Plus Project

The traffic volumes for existing plus project conditions were derived by adding project-generated trips to existing traffic volumes.

Existing Plus Project average daily traffic volumes are shown on Figure 18. Existing Plus Project morning and evening peak hour intersection turning movement volumes are shown on Figure 19 and Figure 20, respectively.

2. Year 2025 Without Project

To assess Year 2025 Without Project traffic conditions, existing traffic was combined with ambient growth and trips generated by other developments (i.e., Existing Plus Ambient Growth Plus Cumulative).

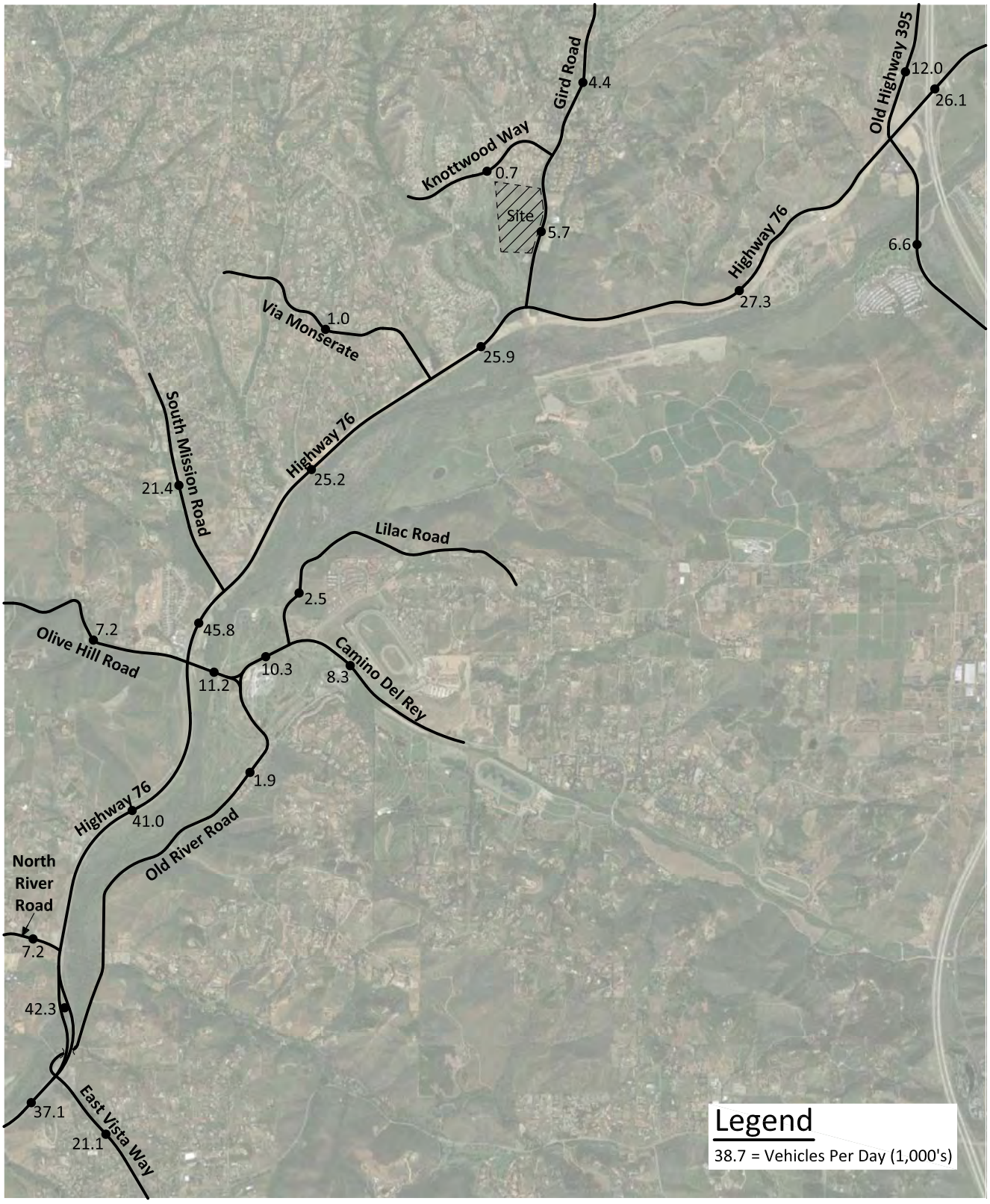
Year 2025 Without Project average daily traffic volumes are shown on Figure 21. Year 2025 Without Project morning and evening peak hour intersection turning movement volumes are shown on Figure 22 and Figure 23, respectively.

3. Year 2025 With Project

To assess Year 2025 With Project traffic conditions, project-generated trips are added to Year 2025 Without Project traffic volumes (i.e., Existing Plus Ambient Growth Plus Cumulative Plus Project).

Year 2025 With Project average daily traffic volumes are shown on Figure 24. Year 2025 With Project morning and evening peak hour intersection turning movement volumes are shown on Figure 25 and Figure 26, respectively.

Figure 18
Existing Plus Project Average Daily Traffic Volumes

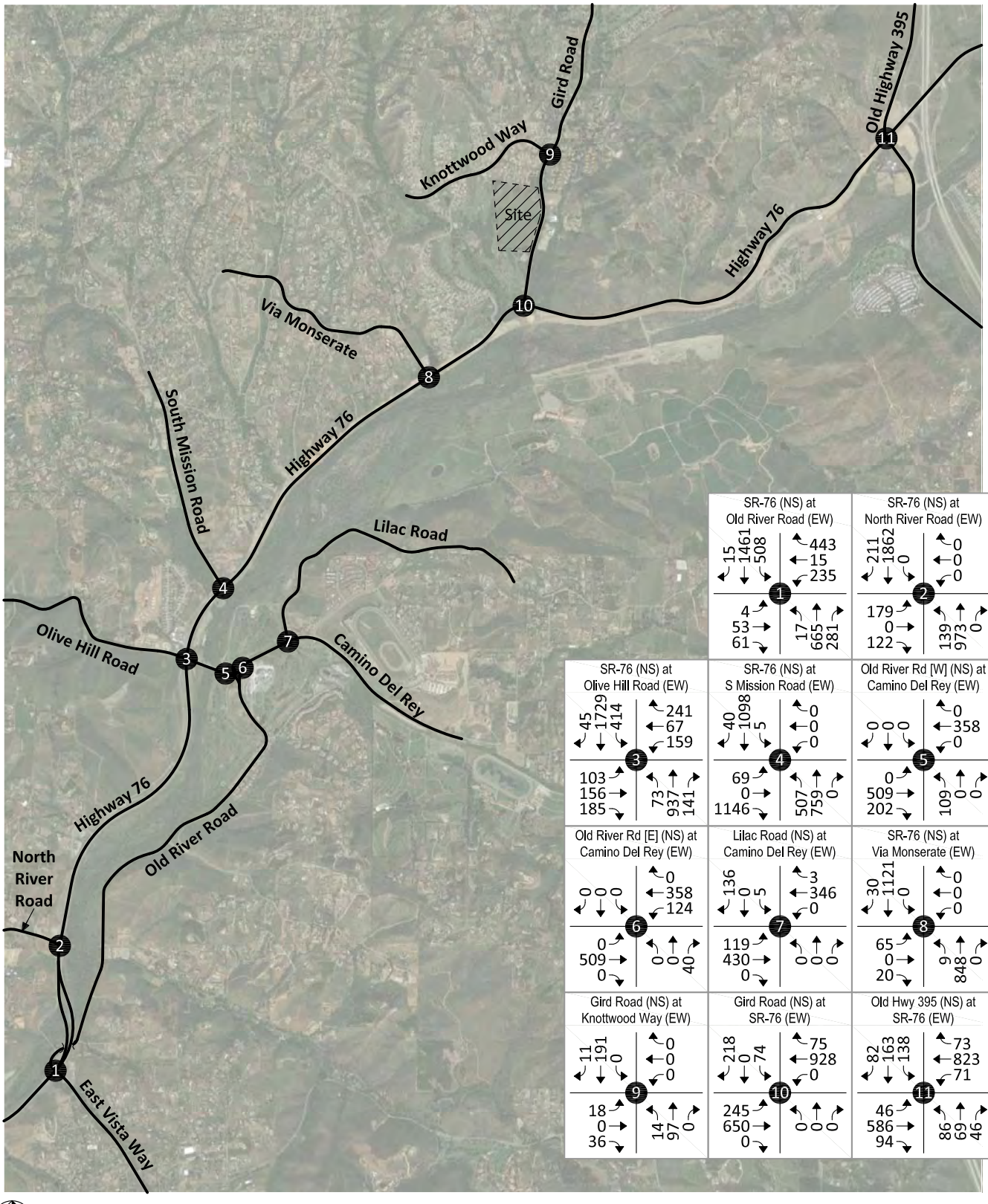


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 19
Existing Plus Project
Morning Peak Hour Intersection Turning Movement Volumes

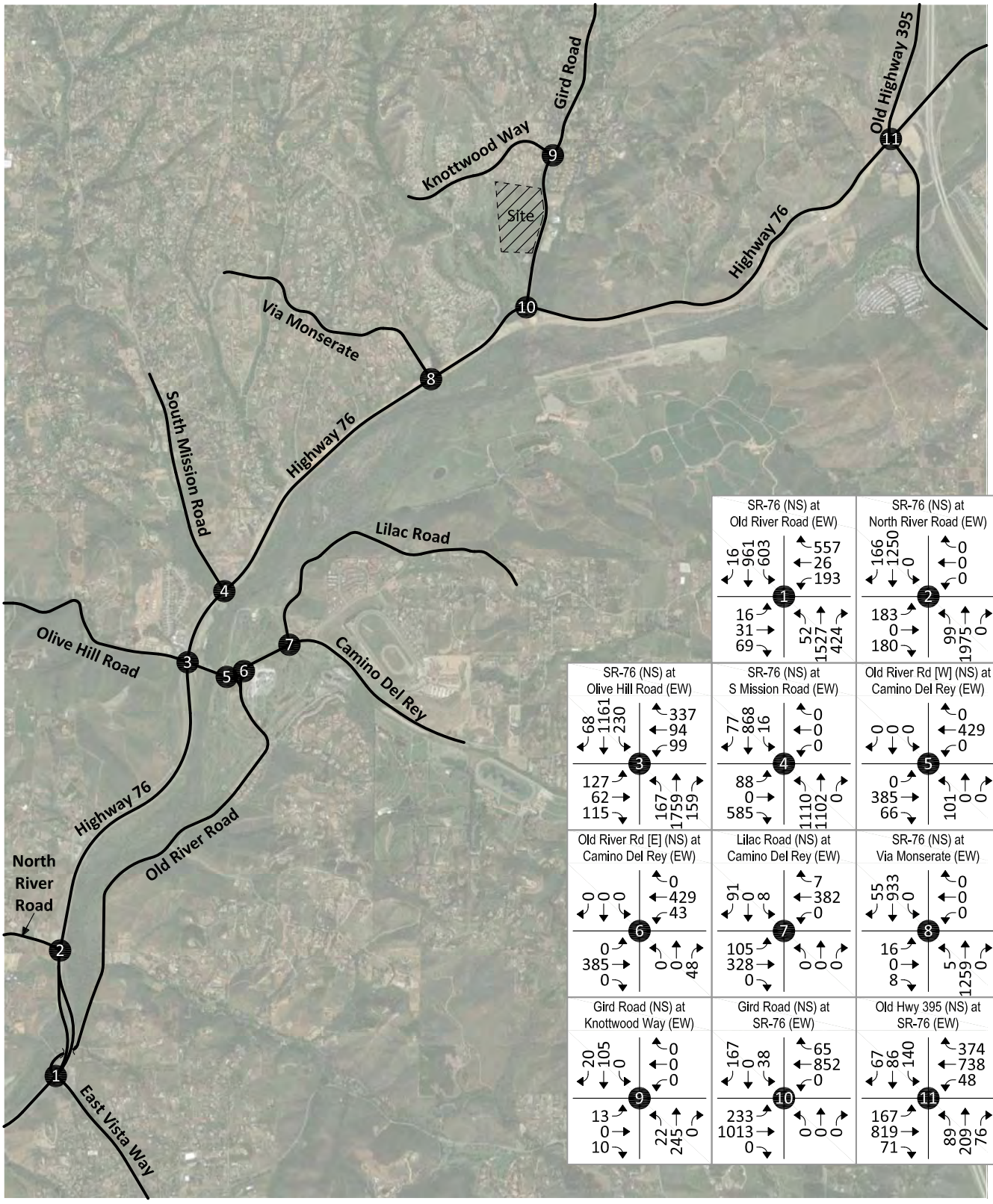


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 20
Existing Plus Project
Evening Peak Hour Intersection Turning Movement Volumes

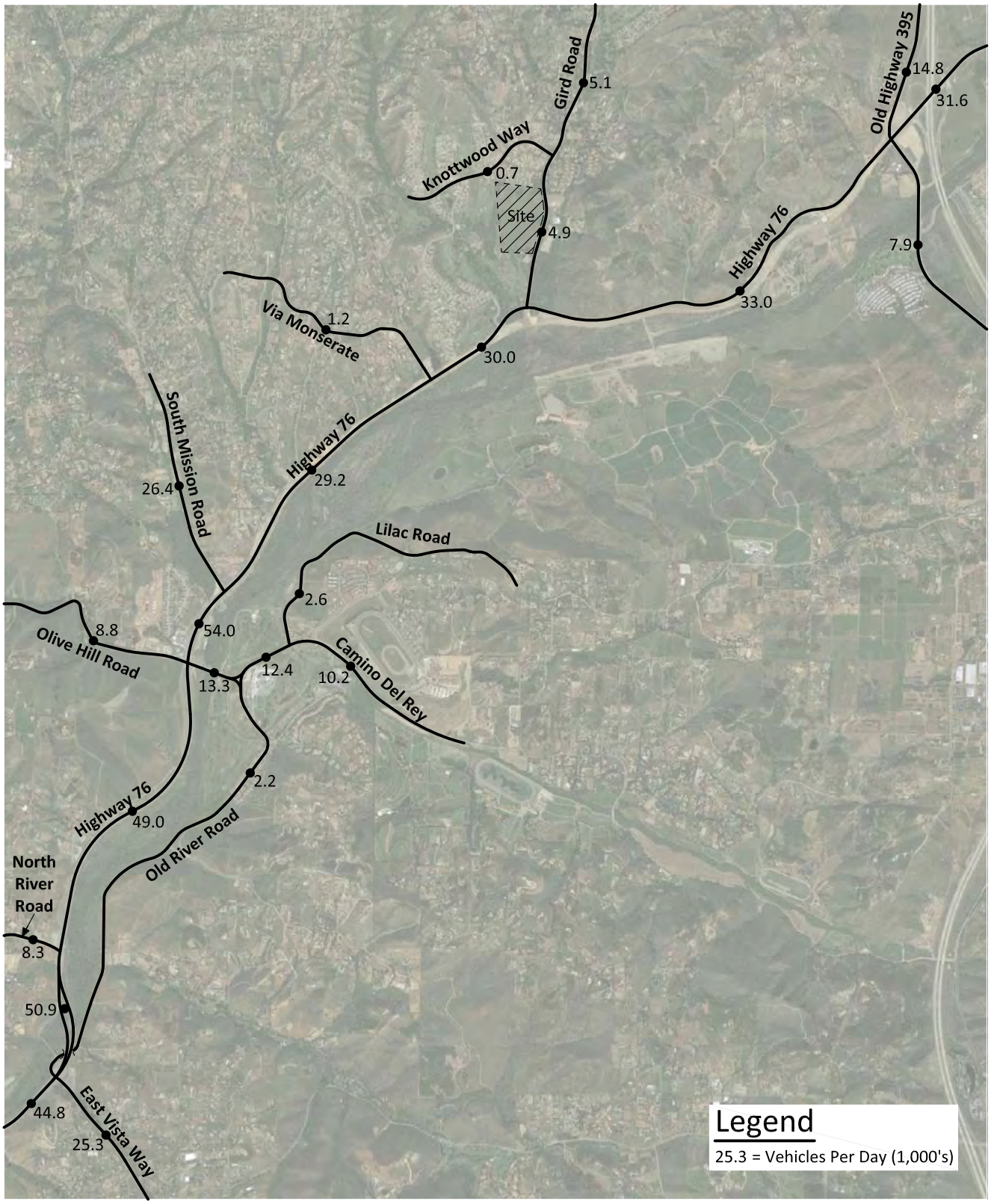


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 21
Year 2025 Without Project Average Daily Traffic Volumes

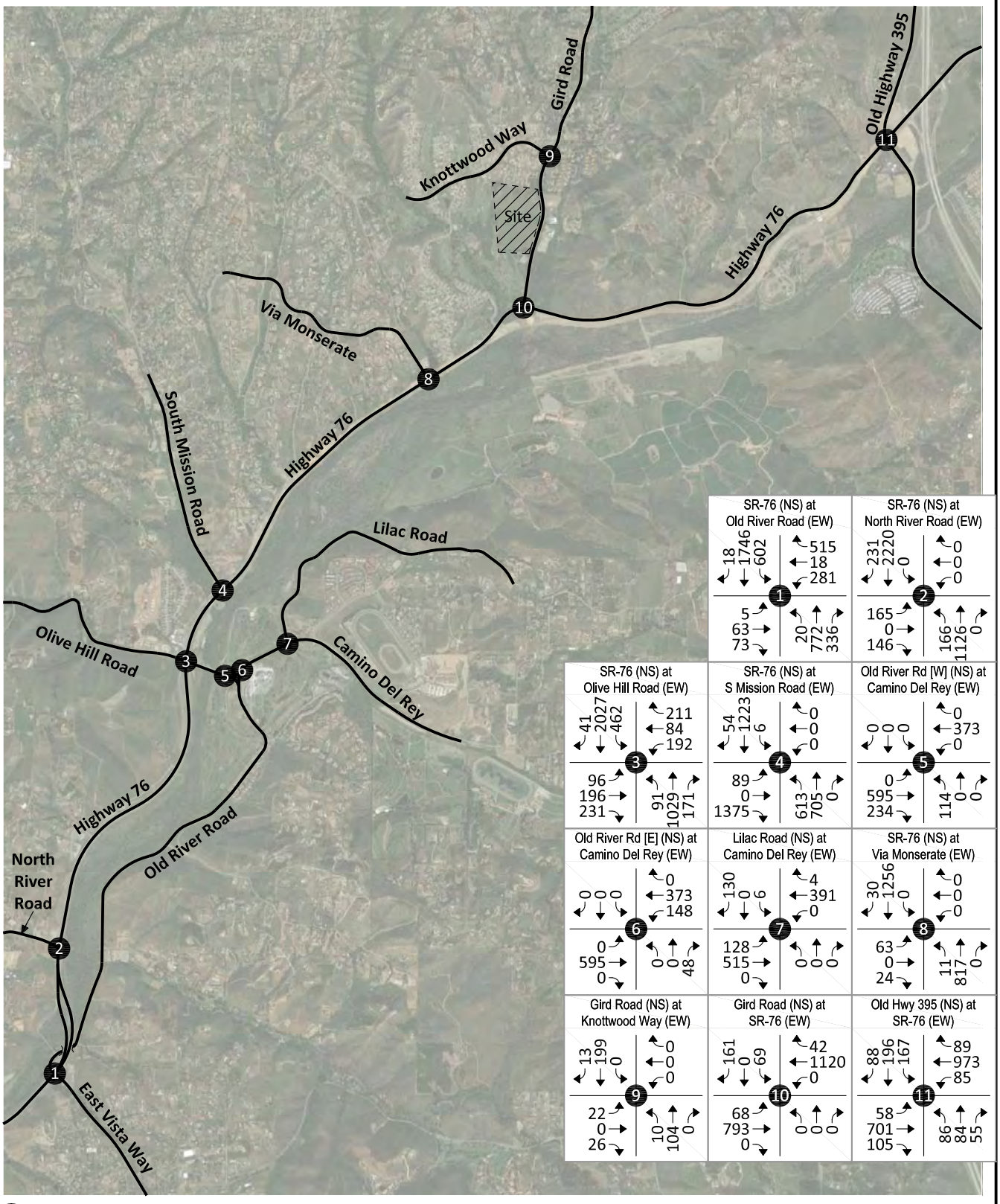


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 22
Year 2025 Without Project
Morning Peak Hour Intersection Turning Movement Volumes

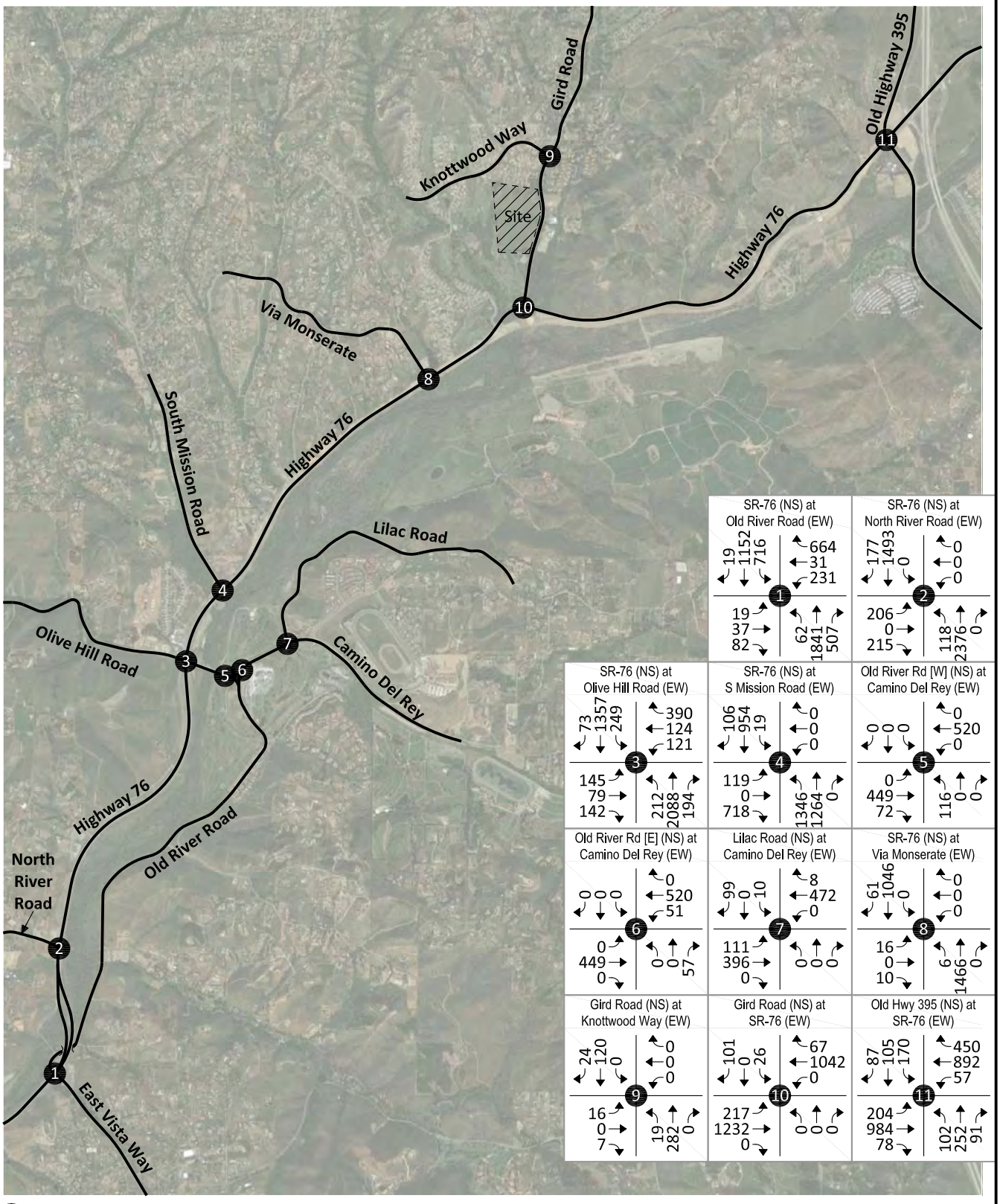


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 23
Year 2025 Without Project
Evening Peak Hour Intersection Turning Movement Volumes

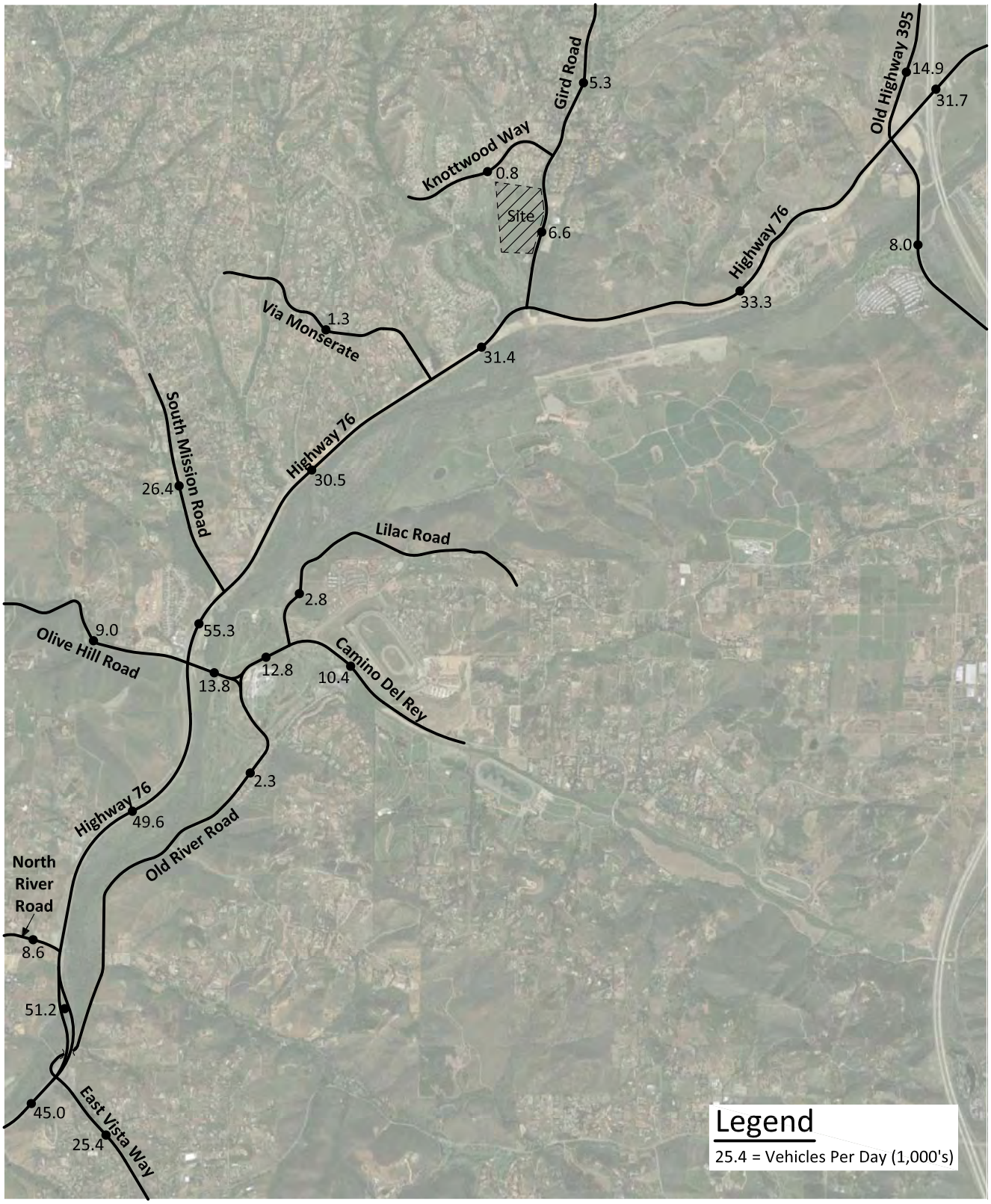


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 24
Year 2025 With Project Average Daily Traffic Volumes

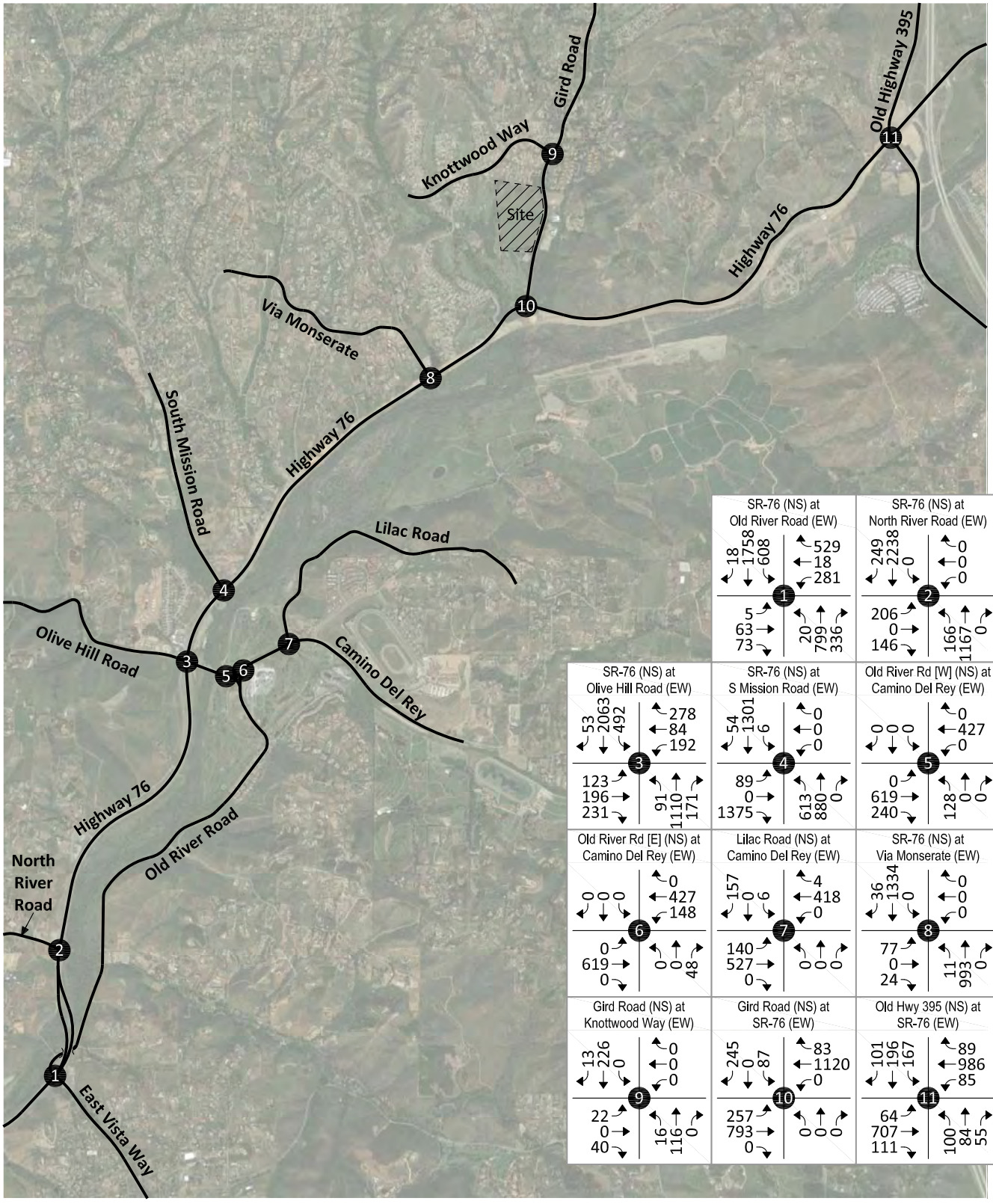


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6497

Figure 25
Year 2025 With Project
Morning Peak Hour Intersection Turning Movement Volumes

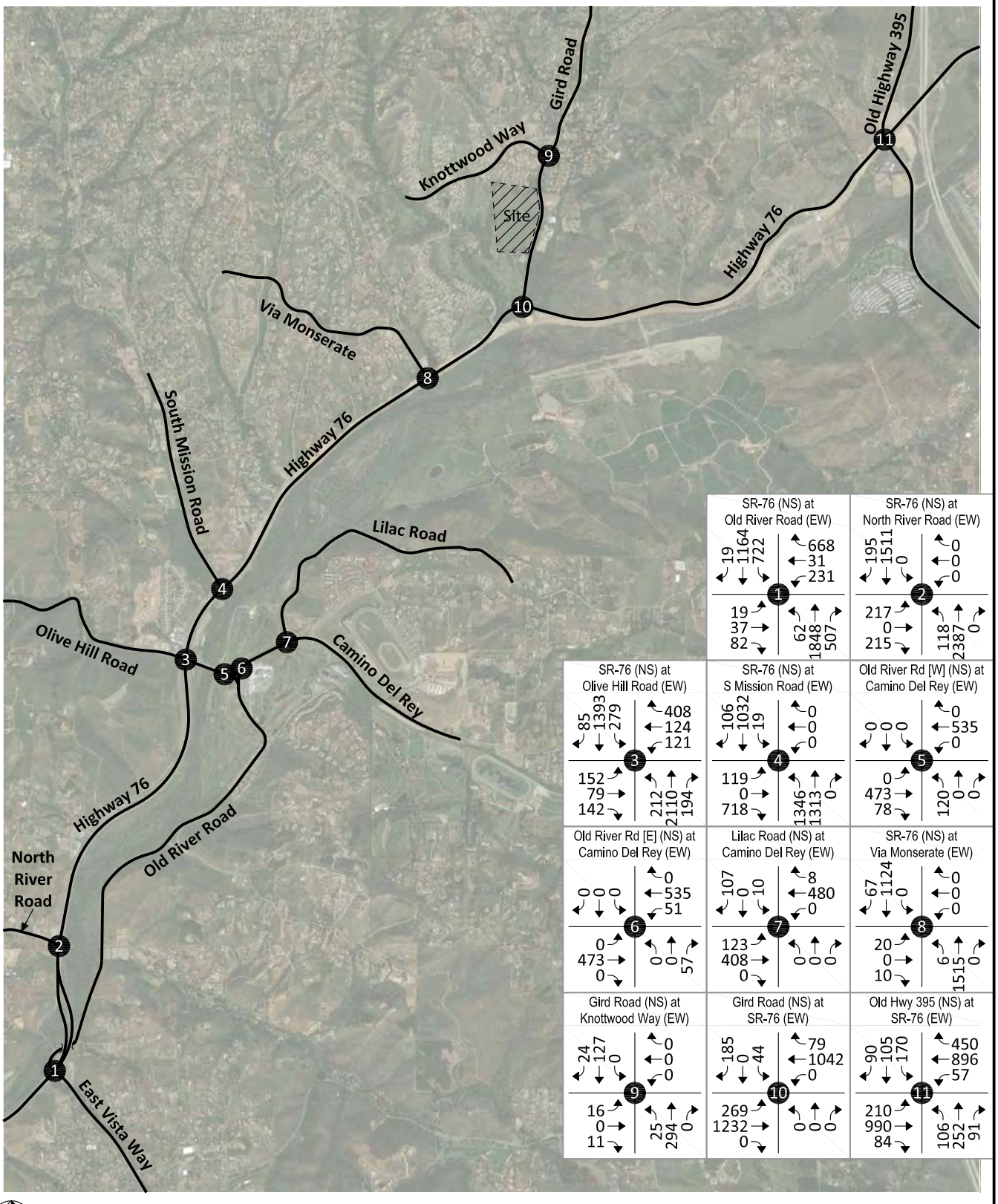


KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

Figure 26
Year 2025 With Project
Evening Peak Hour Intersection Turning Movement Volumes



KUNZMAN ASSOCIATES, INC.

JN 6497

OVER 40 YEARS OF EXCELLENT SERVICE

VI. FUTURE LEVELS OF SERVICE

Detailed delay and Level of Service calculation worksheets for each of the following analysis scenarios are provided in Appendix F.

A. Existing Plus Project Intersection and Roadway Segment Level of Service

The study intersection delay and Level of Service for Existing Plus Project traffic conditions are shown in Table 3 based on existing roadway geometry and traffic signal timing. As shown in Table 3, the study area intersections are projected to operate within acceptable Levels of Service during the peak hours for Existing Plus Project traffic conditions, with the exception of the intersection of SR-76/Via Monserate, which is forecast to continue operating at Level of Service F during both the morning and evening peak hours.

Table 4 shows an evaluation of Existing Plus Project traffic conditions based on the established thresholds of significance. As shown in Table 4, the proposed project is forecast to result in a significant traffic impact at the study intersection of SR-76/Via Monserate for Existing Plus Project traffic conditions.

It should be noted, the Existing Plus Project analysis scenario is a hypothetical condition analyzed to comply with the Sunnyvale West Neighborhood Association v. City of Sunnyvale CEQA court case. This scenario assumes the full development of the proposed project and full absorption of the proposed project trips on the circulation system at the present time. As shown in the analysis for following Opening Year Without Project traffic conditions, improvements currently under construction as part of the SR-76 improvement project include installation of a traffic signal and lane additions at the study intersection of SR-76/Via Monserate. These improvements will mitigate the project impact to a less than significant level. Therefore, the proposed project is forecast to result in no significant traffic impacts at the study intersections upon completion of SR-76 improvements currently under construction for Existing Plus Project traffic conditions.

B. Year 2025 Without Project Intersection and Roadway Segment Level of Service

Roadway conditions for Year 2025 Without Project are based on completion of improvements currently under construction as part of the SR-76 improvement project. The SR-76 improvement project is estimated for completion in 2017, prior to the anticipated opening year of the proposed project.

The study intersection delay and Level of Service for Year 2025 Without Project traffic conditions are shown in Table 5 with SR-76 improvements. As shown in Table 5, the study area intersections are projected to operate within acceptable Levels of Service during the peak hours for Year 2025 Without Project traffic conditions, with the exception of Old River Road [West]/Camino Del Rey, which is forecast to operate at Level of Service E during the morning peak hour.

C. Year 2025 With Project Intersection and Roadway Segment Level of Service

The study intersection delay and Level of Service for Year 2025 With Project traffic conditions are shown in Table 6 with SR-76 improvements. As shown in Table 6, the study area intersections are projected to operate within acceptable Levels of Service during the peak hours for Year 2025 With Project traffic conditions, with the exception of the following study intersections:

- Old River Road [West] (NS)/Camino Del Rey (EW) - #5 [morning & evening peak hour]
- Lilac Road (NS)/Camino Del Rey (EW) - #7 [morning peak hour only]

The following study intersection improvement is recommended for Year 2025 With Project traffic conditions:

- Old River Road [West] (NS)/Camino Del Rey (EW) - #5
  - Convert existing "Y" intersection into a "T" intersection
  - Add an auxiliary lane at the west leg to allow two-stage movement from the minor street

Table 7 shows an evaluation of Year 2025 With Project traffic conditions without and with improvements based on the established thresholds of significance. Without improvements, the proposed project is forecast to result in a significant traffic impact at the Old River Road [West]/Camino Del Rey intersection during the morning peak hour for Year 2025 With Project traffic conditions. As also shown in Table 7, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Year 2025 With Project traffic conditions with improvements.

D. Project Driveways Analysis

Table 8 summarizes the delay and Level of Service for the proposed project driveway assuming single inbound and outbound lanes at each location for Year 2025 With Project traffic conditions. As shown in Table 8, the proposed project driveway is forecast to operate within acceptable Levels of Service during the peak hours for Year 2025 With Project traffic conditions. Based on the forecast traffic volumes and guidance provided in the National Cooperative Highway Research Program Report 745, a northbound left-turn lane is recommended at the project driveway.

Based on review of the Levels of Service and queue lengths, the project driveway is forecast to operate acceptably.

The proposed project driveway is not forecast to meet the minimum thresholds needed to justify installation of traffic signals based on the peak hour signal warrant criteria (Warrant 3) contained in the California Manual on Uniform Traffic Control Devices (California Department of Transportation, 2014).

Table 3

Existing Plus Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
SR-76 (NS) at:																
Old River Road/East Vista Way (EW) - #1	Caltrans	TS	1	3	1	2	3	d	0.5	1	0.5	1.5	0.5	1>	25.2-C	38.7-D
North River Road (EW) - #2	Caltrans	TS	1	2	0	0	2	1	1	0	1	0	0	0	21.1-C	12.9-B
Olive Hill Road/Camino Del Rey (EW) - #3	Caltrans	TS	1	3	1	2	3	1	2	1	1	1	1	1>	36.5-D	40.6-D
South Mission Road (EW) - #4	Caltrans	TS	2	2	0	1	2	1	2	0	2	0	0	0	28.3-C	24.0-C
Old River Road [West] (NS) at:																
Camino Del Rey (EW) - #5	County	CSS	0.5	0	0.5	0	0	0	0	0.5	0.5	0.5	0.5	0	29.7-D	22.4-C
Old River Road [East] (NS) at:																
Camino Del Rey (EW) - #6	County	CSS	0.5	0	0.5	0	0	0	0	0.5	0.5	0.5	0.5	0	12.2-B	11.0-B
Lilac Road (NS) at:																
Camino Del Rey (EW) - #7	County	CSS	0	0	0	1	0	1	0.5	0.5	0	0	1	d	24.8-C	20.5-C
SR-76 (NS) at:																
Via Monserate (EW) - #8	Caltrans	CSS	1	1	0	0	0.5	0..5	1	0	1	0	0	0	299.0-F	168.6-F
- With SR-76 Improvements	Caltrans	**TS**	1	**2**	0	0	**2**	**1**	1	0	1	0	0	0	13.6-B	12.4-B
Gird Road (NS) at:																
Knottwood Way (EW) - #9	County	CSS	1	1	0	0	0.5	0.5	1	0	1	0	0	0	10.1-B	10.5-B
SR-76 (EW) - #10	Caltrans	TS	0	0	0	1	0	1	1	1	0	0	0.5	0.5	54.4-D	24.6-C
Old Highway 395 (NS) at:																
SR-76 (EW) - #11	Caltrans	TS	0.3	0.3	1.3	0.3	0.3	0.3	1	1.5	0.5	1	1.5	0.5	22.2-C	42.1-D

[1] When a right turn lane is designated, the lane can either be striped or unstriped (de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = De Facto Right; > = Right Turn Overlap; **Bold** = Improvement

[2] Delay and Level of Service (LOS) has been calculated using the following analysis software: Synchro, Version 9. Per the Highway Capacity Manual, Level of Service is based on the weighted average delay of the overall intersection for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual movement.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 4

Existing Plus Project Significant Impact Evaluation

Intersection	Jurisdiction	Traffic Control[1]	Morning Peak Hour								Evening Peak Hour							
			Without Project		With Project		Change	Critical Movement[3]		Significant	Without Project		With Project		Change	Critical Movement		Significant
			Delay[2]	LOS	Delay	LOS	in Delay	Movement	Project Trips	Impact?[4]	Delay	LOS	Delay	LOS	in Delay	Movement	Project Trips	Impact?
SR-76 (NS) at:																		
Old River Road/East Vista Way (EW) - #1	Caltrans	TS	25.1	C	25.2	C	+0.1	n/a	n/a	No	38.3	D	38.7	D	+0.4	n/a	n/a	No
North River Road (EW) - #2	Caltrans	TS	18.3	B	21.1	C	+2.8	n/a	n/a	No	12.8	B	12.9	B	+0.1	n/a	n/a	No
Olive Hill Road/Camino Del Rey (EW) - #3	Caltrans	TS	33.0	C	36.5	D	+3.5	n/a	n/a	No	36.1	D	40.6	D	+4.5	n/a	n/a	No
South Mission Road (EW) - #4	Caltrans	TS	25.9	C	28.3	C	+2.4	n/a	n/a	No	20.6	C	24.0	C	+3.4	n/a	n/a	No
Old River Road [West] (NS) at:																		
Camino Del Rey (EW) - #5	County	CSS	23.8	C	29.7	D	+5.9	NBL	+14	No	20.7	C	22.4	C	+1.7	NBL	+4	No
Old River Road [East] (NS) at:																		
Camino Del Rey (EW) - #6	County	CSS	12.0	B	12.2	B	+0.2	NBL	0	No	10.8	B	11.0	B	+0.2	NBL	0	No
Lilac Road (NS) at:																		
Camino Del Rey (EW) - #7	County	CSS	22.4	C	24.8	C	+2.4	SBL	0	No	19.3	C	20.5	C	+1.2	SBL	0	No
SR-76 (NS) at:																		
Via Monserate (EW) - #8	Caltrans	CSS	100.9	F	299.0	F	+198.1	EBL	+14	**Yes**	114.5	F	168.6	F	+54.1	EBL	+4	No
- With Improvements	Caltrans	TS	-	-	13.6	B	-87.3	n/a	n/a	No	-	-	12.4	B	-102.1	n/a	n/a	No
Gird Road (NS) at:																		
Knottwood Way (EW) - #9	County	CSS	9.9	A	10.1	B	+0.2	EBL	0	No	10.3	B	10.5	B	+0.2	EBL	0	No
SR-76 (EW) - #10	Caltrans	TS	15.4	B	54.4	D	+39.0	n/a	n/a	No	15.2	B	24.6	C	+9.4	n/a	n/a	No
Old Highway 395 (NS) at:																		
SR-76 (EW) - #11	Caltrans	TS	20.3	C	22.2	C	+1.9	n/a	n/a	No	39.9	D	42.1	D	+2.2	n/a	n/a	No

[1] TS = Traffic Signal; CSS = Cross Street Stop

[2] Delay is shown in seconds.

[3] n/a = not applicable; critical movement only reported for signalized intersections if Level of Service is F.
NB = Northbound; SB = Southbound; EB = Eastbound; L = Left

[4] For County of San Diego jurisdiction, an impact is significant if the addition of project-generated trips is forecast to result on one of the following conditions:

Level of Service	Signalized	Unsignalized
E	> 2 seconds delay increase	> 20 peak hour trips on a critical movement
F	> 1 second delay increase, or > 5 peak hour trips on a critical movement	> 5 peak hour trips on a critical movement

For Caltrans jurisdiction, an impact is significant if the addition of project-generated trips causes or worsens Level of Service F at a study intersection located on SR-76.

Table 5

Year 2025 Without Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
SR-76 (NS) at:																
Old River Road/East Vista Way (EW) - #1	Caltrans	TS	1	3	1	2	3	d	0.5	1	0.5	1.5	0.5	1>	25.7-C	52.6-D
North River Road (EW) - #2	Caltrans	TS	1	2	0	0	2	1	1	0	1	0	0	0	31.2-C	20.0-B
Olive Hill Road/Camino Del Rey (EW) - #3	Caltrans	TS	1	3	1	2	3	1	2	1	1	1	1	1>	45.5-D	47.2-D
South Mission Road (EW) - #4	Caltrans	TS	2	2	0	1	2	1	2	0	2	0	0	0	37.9-D	34.9-C
Old River Road [West] (NS) at:																
Camino Del Rey (EW) - #5	County	CSS	0.5	0	0.5	0	0	0	0	0.5	0.5	0.5	0.5	0	40.4-E	32.6-D
Old River Road [East] (NS) at:																
Camino Del Rey (EW) - #6	County	CSS	0.5	0	0.5	0	0	0	0	0.5	0.5	0.5	0.5	0	13.4-B	11.8-B
Lilac Road (NS) at:																
Camino Del Rey (EW) - #7	County	CSS	0	0	0	1	0	1	0.5	0.5	0	0	1	d	31.2-D	26.1-D
SR-76 (NS) at:																
Via Monserate (EW) - #8	Caltrans	**TS**	1	**2**	0	0	**2**	**1**	1	0	1	0	0	0	16.7-B	14.4-B
Gird Road (NS) at:																
Knottwood Way (EW) - #9	County	CSS	1	1	0	0	0.5	0.5	1	0	1	0	0	0	10.4-B	10.7-B
SR-76 (EW) - #10	Caltrans	TS	0	0	0	1	0	1	1	**2**	0	0	**2**	**1**	10.8-B	9.7-A
Old Highway 395 (NS) at:																
SR-76 (EW) - #11	Caltrans	TS	**1**	**1**	**1**	**2**	**0.5**	**0.5**	**1**	**3**	**1**	**1**	**2.5**	**0.5**	16.3-B	22.5-C

[1] When a right turn lane is designated, the lane can either be striped or unstriped (de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = De Facto Right; > = Right Turn Overlap; **Bold** = Improvement

[2] Delay and Level of Service (LOS) has been calculated using the following analysis software: Synchro, Version 9. Per the Highway Capacity Manual, Level of Service is based on the weighted average delay of the overall intersection for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual movement.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 6

Year 2025 With Project Intersection Delay and Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
SR-76 (NS) at:																
Old River Road/East Vista Way (EW) - #1	Caltrans	TS	1	3	1	2	3	d	0.5	1	0.5	1.5	0.5	1>	26.3-C	53.1-D
North River Road (EW) - #2	Caltrans	TS	1	2	0	0	2	1	1	0	1	0	0	0	38.6-D	20.3-C
Olive Hill Road/Camino Del Rey (EW) - #3	Caltrans	TS	1	3	1	2	3	1	2	1	1	1	1	1>	50.6-D	52.9-D
South Mission Road (EW) - #4	Caltrans	TS	2	2	0	1	2	1	2	0	2	0	0	0	39.2-D	36.4-D
Old River Road [West] (NS) at:																
Camino Del Rey (EW) - #5	County	CSS	0.5	0	0.5	0	0	0	0	0.5	0.5	0.5	0.5	0	58.9-F	37.1-E
- With Improvements		CSS	1	0	1	0	0	0	0	0.5	0.5	0.5	0.5	0	32.3-D	18.9-C
Old River Road [East] (NS) at:																
Camino Del Rey (EW) - #6	County	CSS	0.5	0	0.5	0	0	0	0	0.5	0.5	0.5	0.5	0	13.7-B	12.0-B
Lilac Road (NS) at:																
Camino Del Rey (EW) - #7	County	CSS	0	0	0	1	0	1	0.5	0.5	0	0	1	d	35.2-E	28.2-D
SR-76 (NS) at:																
Via Monserate (EW) - #8	Caltrans	**TS**	1	**2**	0	0	**2**	**1**	1	0	1	0	0	0	19.0-B	15.5-B
Gird Road (NS) at:																
Knottwood Way (EW) - #9	County	CSS	1	1	0	0	0.5	0.5	1	0	1	0	0	0	10.4-B	10.9-B
SR-76 (EW) - #10	Caltrans	TS	0	0	0	1	0	1	1	**2**	0	0	**2**	**1**	20.5-C	13.8-B
Old Highway 395 (NS) at:																
SR-76 (EW) - #11	Caltrans	TS	**1**	**1**	**1**	**2**	**0.5**	**0.5**	**1**	**3**	**1**	**1**	**2.5**	**0.5**	17.3-B	22.8-C

[1] When a right turn lane is designated, the lane can either be striped or unstriped (de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; d = De Facto Right; > = Right Turn Overlap; **Bold** = Improvement

[2] Delay and Level of Service (LOS) has been calculated using the following analysis software: Synchro, Version 9. Per the Highway Capacity Manual, Level of Service is based on the weighted average delay of the overall intersection for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual movement.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 7

Year 2025 Significant Impact Evaluation

Intersection	Jurisdiction	Traffic Control[1]	Morning Peak Hour								Evening Peak Hour							
			Without Project		With Project		Change	Critical Movement[3]		Significant	Without Project		With Project		Change	Critical Movement		Significant
			Delay[2]	LOS	Delay	LOS	in Delay	Movement	Project Trips	Impact?[4]	Delay	LOS	Delay	LOS	in Delay	Movement	Project Trips	Impact?
SR-76 (NS) at:																		
Old River Road/East Vista Way (EW) - #1	Caltrans	TS	25.7	C	26.3	C	+0.6	n/a	n/a	No	52.6	D	53.1	D	+0.5	n/a	n/a	No
North River Road (EW) - #2	Caltrans	TS	31.2	C	38.6	D	+7.4	n/a	n/a	No	20.0	B	20.3	C	+0.3	n/a	n/a	No
Olive Hill Road/Camino Del Rey (EW) - #3	Caltrans	TS	45.5	D	50.6	D	+5.1	n/a	n/a	No	47.2	D	52.9	D	+5.7	n/a	n/a	No
South Mission Road (EW) - #4	Caltrans	TS	37.9	D	39.2	D	+1.3	n/a	n/a	No	34.9	C	36.4	D	+1.5	n/a	n/a	No
Old River Road [West] (NS) at:																		
Camino Del Rey (EW) - #5	County	CSS	40.4	E	58.9	F	+18.5	NBL	+14	**Yes**	32.6	D	37.1	E	+4.5	NBL	+4	No
- With Improvements		CSS	-	-	32.3	D	-8.1	NBL	+14	No	0.0	0.0	18.9	C	-13.7	NBL	+4	No
Old River Road [East] (NS) at:																		
Camino Del Rey (EW) - #6	County	CSS	13.4	B	13.7	B	+0.3	NBL	0	No	11.8	B	12.0	B	+0.2	NBL	0	No
Lilac Road (NS) at:																		
Camino Del Rey (EW) - #7	County	CSS	31.2	D	35.2	E	+4.0	SBL	0	No	26.1	D	28.2	D	+2.1	SBL	0	No
SR-76 (NS) at:																		
Via Monserate (EW) - #8	Caltrans	TS	16.7	B	19.0	B	+2.3	n/a	n/a	No	14.4	B	15.5	B	+1.1	n/a	n/a	No
Gird Road (NS) at:																		
Knottwood Way (EW) - #9	County	CSS	10.4	B	10.4	B	0.0	EBL	0	No	10.7	B	10.9	B	+0.2	EBL	0	No
SR-76 (EW) - #10	Caltrans	TS	10.8	B	20.5	C	+9.7	n/a	n/a	No	9.7	A	13.8	B	+4.1	n/a	n/a	No
Old Highway 395 (NS) at:																		
SR-76 (EW) - #11	Caltrans	TS	16.3	B	17.3	B	+1.0	n/a	n/a	No	22.5	C	22.8	C	+0.3	n/a	n/a	No

[1] TS = Traffic Signal; CSS = Cross Street Stop

[2] Delay is shown in seconds.

[3] n/a = not applicable; critical movement only reported for signalized intersections if Level of Service is F.
NB = Northbound; SB = Southbound; EB = Eastbound; L = Left

[4] For County of San Diego jurisdiction, an impact is significant if the addition of project-generated trips is forecast to result on one of the following conditions:

Level of Service	Signalized	Unsignalized
E	> 2 seconds delay increase	> 20 peak hour trips on a critical movement
F	> 1 second delay increase, or > 5 peak hour trips on a critical movement	> 5 peak hour trips on a critical movement

For Caltrans jurisdiction, an impact is significant if the addition of project-generated trips causes or worsens Level of Service F at a study intersection located on SR-76.

Table 8

Year 2025 Project Driveway Delay and Levels of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												Peak Hour Delay-LOS[2]	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Gird Road (NS) at:																
Project Driveway (EW)	County	CSS	**1**	1	0	0	0.5	0.5	**0.5**	0	**0.5**	0	0	0	13.0-B	10.6-B

[1] When a right turn lane is designated, the lane can either be striped or unstriped (de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; **Bold** = Improvement

[2] Delay and Level of Service (LOS) has been calculated using the following analysis software: Synchro, Version 9. Per the Highway Capacity Manual, Level of Service is based on the weighted average delay of the overall intersection for intersections with traffic signal or all way stop control. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual movement.

[3] CSS = Cross Street Stop

VII. RECOMMENDATIONS

A. Off-Site Mitigation Measures

The proposed project is forecast to result in no direct significant traffic impacts based on the findings of the Existing Plus Project analysis scenario.

The following study intersection improvement is recommended for Year 2025 With Project traffic conditions:

- Old River Road [West] (NS)/Camino Del Rey (EW) - #5
  - Convert existing "Y" intersection into a "T" intersection
  - Add an auxiliary lane at the west leg to allow two-stage movement from the minor street

The identified improvement is listed in the County of San Diego Transportation Impact Fee (TIF) program. The proposed project should contribute on a fair share basis through the adopted TIF program in the implementation of the recommended improvements.

B. On-Site & Site Adjacent Recommendations

Site-specific circulation and access recommendations are depicted on Figure 27.

Construct Gird Road along the project site boundary at its ultimate half-section width, including landscaping and parkway improvements in conjunction with development, as necessary and/or required by the County of San Diego Public Works Department.

The proposed project driveways should be stop-sign controlled for outbound vehicles. The proposed project driveway should be constructed in conformance with County of San Diego Public Works and Fire Department standards, including provisions for sight distance requirements. A northbound left-turn lane is recommended at the project driveway.

On-site traffic signing/striping and on-site parking should be provided in accordance with State requirements.

The project site plan, including internal roadway widths and access, should be reviewed by the County of San Diego Fire Department to ensure adequate emergency access is provided.

As is the case for any roadway design, the County of San Diego should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

Figure 27
Circulation Recommendations

Construct Gird Road along the project site boundary at its ultimate half-section width, including landscaping and parkway improvements in conjunction with development, as necessary and/or required by the County of San Diego Public Works Department.

Legend

STOP = Stop Sign
= Full Access Driveway
= Recommended Left-Turn Lane

The proposed project driveways should be stop-sign controlled for outbound vehicles. The proposed project driveway should be constructed in conformance with County of San Diego Public Works and Fire Department standards, including provisions for sight distance requirements. A northbound left-turn lane is recommended at the project driveway.

On-site traffic signing/striping and on-site parking should be provided in accordance with State requirements.

The project site plan, including internal roadway widths and access, should be reviewed by the County of San Diego Fire Department to ensure adequate emergency access is provided.

As is the case for any roadway design, the County of San Diego should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

VIII. CEQA CHECKLIST

This section addresses the environmental checklist questions for Transportation/Traffic contained in the California Environmental Quality Act (CEQA) Guidelines, Appendix G, XVI.

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Findings: Based on the applicable thresholds of significance established by the County of San Diego and the California Department of Transportation, and the analysis contained in Section VI, the proposed project is forecast to result in no significant traffic impacts at the study intersections for the evaluated scenarios with implementation of the recommended off-site mitigation measures.

b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Findings: The thresholds of significance established by the Congestion Management Program apply to signalized intersections only. The thresholds of significance for signalized intersections as established by the County of San Diego (>2 second delay increase at Level of Service E, or >1 second delay increase at Level of Service F) are more stringent than the Congestion Management Program thresholds of significance (>2 second delay increase at Level of Service E or F). Therefore, the proposed project is forecast to result in no significant traffic impacts at the signalized study intersections based on the Congestion Management Program thresholds of significance.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Findings: The proposed project would have no effect on air traffic patterns.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Findings: The proposed project does not introduce any new roadways with the exception of the project driveway and internal roads. The proposed project is not forecast to substantially increase hazards due to a design feature with implementation of the on-site & site adjacent recommendations.

e) Would the project result in inadequate emergency access?

Findings: To be determined; pending review by County of San Diego Public Works and Fire Department. The proposed project driveway should be constructed in conformance with County of San Diego Public Works and Fire Department standards, including provisions for sight distance requirements. A northbound left-turn lane is recommended at the project driveway.

f) Would the project Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Findings: Due to the rural character of the region, there are generally no existing sidewalks or designated bicycle facilities in the project vicinity. The study area is currently served by North County Transit District Route 306 along SR-76/South Mission Road; however, no transit routes/stops are located within 1/4-mile of the project site. The proposed project would not conflict with any planned bicycle or pedestrian facilities.

Providing bicycle or sidewalk improvements in the immediate project vicinity does not address the larger issue of a lack of bicycle and pedestrian connectivity throughout the region. Although there is the potential for increased bicycle and pedestrian demand associated with the proposed high school, it is anticipated that the proposed high school would operate similarly to other schools in the region, which also lack bicycle and pedestrian infrastructure. The School District should consider providing buses and prohibit walking/biking to school.

APPENDICES

Appendix A – Glossary of Transportation Terms

Appendix B – Traffic Count Worksheets

Appendix C – Existing Intersection Delay and Level of Service Worksheets

Appendix D – Attendance Boundary Map

Appendix E – Other Development Information

Appendix F – Future Intersection Delay and Level of Service Worksheets

APPENDIX A

Glossary of Transportation Terms

GLOSSARY OF TRANSPORTATION TERMS

COMMON ABBREVIATIONS

AC:	Acres
ADT:	Average Daily Traffic
Caltrans:	California Department of Transportation
DU:	Dwelling Unit
ICU:	Intersection Capacity Utilization
LOS:	Level of Service
TSF:	Thousand Square Feet
V/C:	Volume/Capacity
VMT:	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A constriction along a travelway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CYCLE LENGTH: The time period in seconds required for one complete signal cycle.

CUL-DE-SAC STREET: A local street open at one end only, and with special provisions for turning around.

DAILY CAPACITY: The daily volume of traffic that will result in a volume during the peak hour equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

PASSENGER CAR EQUIVALENTS (PCE): One car is one Passenger Car Equivalent. A truck is equal to 2 or 3 Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through a signalized intersection.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination; i.e. each trip has two trip-ends. A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

Traffic Count Worksheets

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

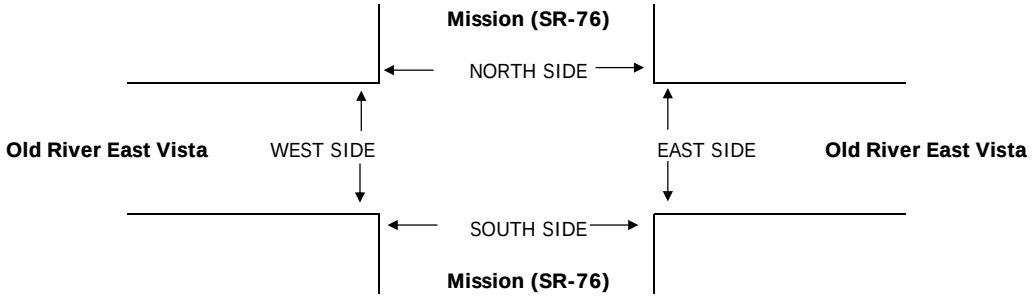
DATE:				
Wed, Jun 29, 16	LOCATION:	Bonsall	PROJECT #:	SC1013
	NORTH & SOUTH:	Mission (SR-76)	LOCATION #:	1
	EAST & WEST:	Old River East Vista	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

		NORTHBOUND Mission (SR-76)			SOUTHBOUND Mission (SR-76)			EASTBOUND Old River East Vista			WESTBOUND Old River East Vista			
	LANES:	NL 1	NT 3	NR 1	SL 2	ST 3	SR 0	EL 0.5	ET 1	ER 0.5	WL 1.5	WT 0.5	WR 1	TOTAL
AM	7:00 AM	3	123	62	123	325	4	1	7	11	47	3	87	796
	7:15 AM	2	107	49	140	396	4	1	11	11	47	2	77	847
	7:30 AM	5	157	49	112	384	3	0	13	11	44	4	80	862
	7:45 AM	3	115	61	123	333	4	1	11	15	47	3	93	809
	8:00 AM	6	161	52	96	274	6	1	10	8	65	7	62	748
	8:15 AM	7	136	53	111	278	3	0	6	12	35	2	69	712
	8:30 AM	10	157	51	135	329	4	1	10	16	48	3	81	845
	8:45 AM	5	129	45	120	297	5	1	6	6	41	6	82	743
	VOLUMES	41	1,085	422	960	2,616	33	6	74	90	374	30	631	6,362
	APPROACH %	3%	70%	27%	27%	72%	1%	4%	44%	53%	36%	3%	61%	
	APP/DEPART	1,548	/	1,722	3,609	/	3,080	170	/	1,456	1,035	/	104	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	13	502	221	498	1,438	15	3	42	48	185	12	337	3,314
	APPROACH %	2%	68%	30%	26%	74%	1%	3%	45%	52%	35%	2%	63%	
	PEAK HR FACTOR		0.872			0.903			0.861			0.934		0.961
	APP/DEPART	736	/	842	1,951	/	1,671	93	/	761	534	/	40	0
PM	4:00 PM	13	401	99	125	261	6	0	8	15	43	7	130	1,108
	4:15 PM	16	353	97	126	221	4	2	9	10	41	2	119	1,000
	4:30 PM	12	373	116	158	235	3	10	7	14	61	8	133	1,130
	4:45 PM	11	392	112	188	232	3	4	7	30	48	9	171	1,207
	5:00 PM	7	381	83	105	201	2	8	8	32	45	10	129	1,011
	5:15 PM	7	411	95	127	208	7	4	6	42	33	7	108	1,055
	5:30 PM	14	352	76	122	232	4	10	7	39	55	13	125	1,049
	5:45 PM	9	410	61	91	220	2	2	6	17	38	10	97	963
	VOLUMES	89	3,073	739	1,042	1,810	31	40	58	199	364	66	1,012	8,523
	APPROACH %	2%	79%	19%	36%	63%	1%	13%	20%	67%	25%	5%	70%	
	APP/DEPART	3,901	/	4,125	2,883	/	2,373	297	/	1,839	1,442	/	186	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	52	1,519	424	597	949	16	16	31	69	193	26	553	4,445
	APPROACH %	3%	76%	21%	38%	61%	1%	14%	27%	59%	25%	3%	72%	
	PEAK HR FACTOR		0.968			0.923			0.707			0.846		0.921
	APP/DEPART	1,995	/	2,088	1,562	/	1,211	116	/	1,052	772	/	94	0



INTERSECTION TURNING MOVEMENT COUNTS

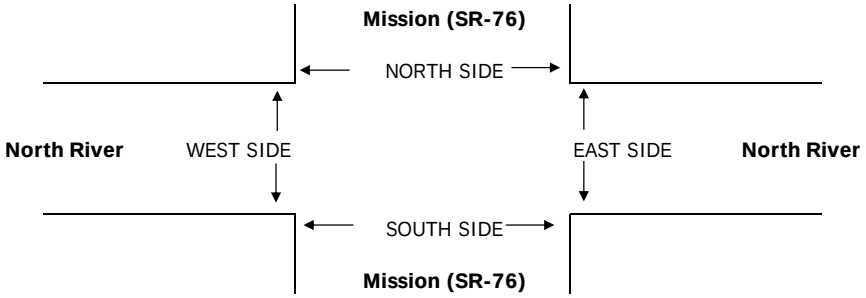
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Bonsall	PROJECT #:	SC1013
Wed, Jun 29, 16	NORTH & SOUTH:	Mission (SR-76)	LOCATION #:	2
	EAST & WEST:	North River	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Mission (SR-76)			SOUTHBOUND Mission (SR-76)			EASTBOUND North River			WESTBOUND North River			
	LANES:	NL 1	NT 2	NR X	SL X	ST 2	SR 1	EL 1	ET X	ER 1	WL X	WT X	WR X	TOTAL
AM	7:00 AM	44	159	0	0	380	42	30	0	26	0	0	0	681
	7:15 AM	29	170	0	0	497	49	29	0	32	0	0	0	806
	7:30 AM	20	233	0	0	466	43	27	0	22	0	0	0	811
	7:45 AM	19	189	0	0	401	48	25	0	18	0	0	0	700
	8:00 AM	18	167	0	0	354	27	23	0	21	0	0	0	610
	8:15 AM	21	159	0	0	350	30	30	0	21	0	0	0	611
	8:30 AM	17	237	0	0	427	21	26	0	21	0	0	0	749
	8:45 AM	25	193	0	0	369	27	33	0	16	0	0	0	663
	VOLUMES	193	1,507	0	0	3,244	287	223	0	177	0	0	0	5,631
	APPROACH %	11%	89%	0%	0%	92%	8%	56%	0%	44%	0%	0%	0%	
	APP/DEPART	1,700	/	1,730	3,531	/	3,428	400	/	0	0	/	473	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	112	751	0	0	1,744	182	111	0	98	0	0	0	2,998
	APPROACH %	13%	87%	0%	0%	91%	9%	53%	0%	47%	0%	0%	0%	
	PEAK HR FACTOR		0.853			0.882			0.857			0.000		0.924
	APP/DEPART	863	/	862	1,926	/	1,843	209	/	0	0	/	293	0
PM	4:00 PM	19	494	0	0	297	40	35	0	63	0	0	0	948
	4:15 PM	31	429	0	0	272	37	62	0	65	0	0	0	896
	4:30 PM	30	473	0	0	264	26	61	0	66	0	0	0	920
	4:45 PM	22	457	0	0	312	41	47	0	54	0	0	0	933
	5:00 PM	27	492	0	0	306	35	43	0	33	0	0	0	936
	5:15 PM	24	496	0	0	282	34	59	0	58	0	0	0	953
	5:30 PM	26	519	0	0	332	38	23	0	35	0	0	0	973
	5:45 PM	21	502	0	0	262	22	47	0	26	0	0	0	880
	VOLUMES	200	3,862	0	0	2,327	273	377	0	400	0	0	0	7,439
	APPROACH %	5%	95%	0%	0%	90%	11%	49%	0%	51%	0%	0%	0%	
	APP/DEPART	4,062	/	4,239	2,600	/	2,740	777	/	0	0	/	460	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	99	1,964	0	0	1,232	148	172	0	180	0	0	0	3,795
	APPROACH %	5%	95%	0%	0%	89%	11%	49%	0%	51%	0%	0%	0%	
	PEAK HR FACTOR		0.946			0.932			0.752			0.000		0.975
	APP/DEPART	2,063	/	2,136	1,380	/	1,419	352	/	0	0	/	240	0



INTERSECTION TURNING MOVEMENT COUNTS

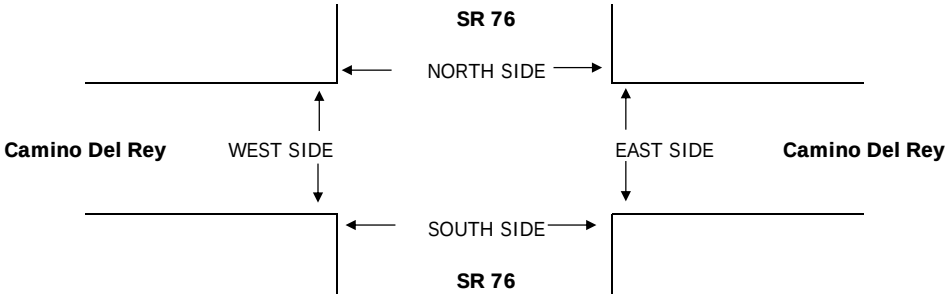
PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:	LOCATION:	Fallbrook	PROJECT #:	SC0977
Thu, May 26, 16	NORTH & SOUTH:	SR 76	LOCATION #:	1
	EAST & WEST:	Camino Del Rey	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR 76			SOUTHBOUND SR 76			EASTBOUND Camino Del Rey			WESTBOUND Camino Del Rey			
	LANES:	NL 1	NT 3	NR 1	SL 2	ST 3	SR 1	EL 2	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	17	183	18	52	492	13	15	35	49	45	16	29	964
	7:15 AM	15	222	24	72	454	7	14	40	61	42	8	43	1,002
	7:30 AM	16	202	35	123	390	5	21	39	43	36	19	48	977
	7:45 AM	25	249	64	137	357	8	26	42	32	36	24	53	1,053
	8:00 AM	24	184	28	52	326	9	29	32	41	52	39	82	898
	8:15 AM	19	222	19	50	339	4	27	20	51	35	14	57	857
	8:30 AM	21	188	16	42	301	7	19	21	37	39	17	43	751
	8:45 AM	22	222	13	34	323	2	14	26	42	14	10	40	762
	VOLUMES	159	1,672	217	562	2,982	55	165	255	356	299	147	395	7,264
	APPROACH %	8%	82%	11%	16%	83%	2%	21%	33%	46%	36%	17%	47%	
	APP/DEPART	2,048	/	2,232	3,599	/	3,638	776	/	1,034	841	/	360	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	73	856	141	384	1,693	33	76	156	185	159	67	173	3,996
	APPROACH %	7%	80%	13%	18%	80%	2%	18%	37%	44%	40%	17%	43%	
	PEAK HR FACTOR		0.791			0.947			0.907			0.883		0.949
	APP/DEPART	1,070	/	1,105	2,110	/	2,037	417	/	681	399	/	173	0
PM	4:00 PM	42	380	39	44	247	8	35	20	33	27	31	68	974
	4:15 PM	43	475	38	60	275	12	30	10	27	27	22	70	1,089
	4:30 PM	42	427	52	56	268	11	35	16	32	25	16	69	1,049
	4:45 PM	44	415	32	47	309	9	29	18	19	23	26	85	1,056
	5:00 PM	31	417	33	46	279	17	30	16	23	26	34	90	1,042
	5:15 PM	50	477	42	51	269	19	25	12	41	25	18	74	1,103
	5:30 PM	37	421	34	41	247	16	30	14	20	32	23	62	977
	5:45 PM	25	416	37	48	289	9	23	13	24	15	24	63	986
	VOLUMES	314	3,428	307	393	2,183	101	237	119	219	200	194	581	8,276
	APPROACH %	8%	85%	8%	15%	82%	4%	41%	21%	38%	21%	20%	60%	
	APP/DEPART	4,049	/	4,246	2,677	/	2,604	575	/	819	975	/	607	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	167	1,736	159	200	1,125	56	119	62	115	99	94	318	4,250
	APPROACH %	8%	84%	8%	14%	81%	4%	40%	21%	39%	19%	18%	62%	
	PEAK HR FACTOR		0.906			0.946			0.892			0.852		0.963
	APP/DEPART	2,062	/	2,173	1,381	/	1,339	296	/	421	511	/	317	0



INTERSECTION TURNING MOVEMENT COUNTS

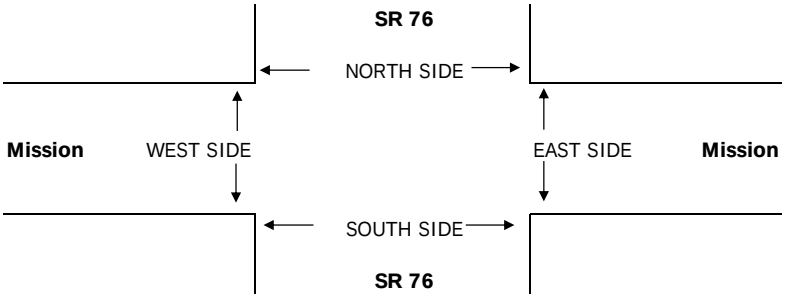
PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:	LOCATION:	Fallbrook	PROJECT #:	SC0977
Thu, May 26, 16	NORTH & SOUTH:	SR 76	LOCATION #:	2
	EAST & WEST:	Mission	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR 76			SOUTHBOUND SR 76			EASTBOUND Mission			WESTBOUND Mission			
	LANES:	NL 2	NT 3	NR X	SL X	ST 3	SR 1	EL 2	ET X	ER 2	WL X	WT X	WR X	TOTAL
AM	7:00 AM	92	123	0	0	289	5	9	0	287	0	0	0	805
	7:15 AM	149	129	0	0	237	10	17	0	320	0	0	0	862
	7:30 AM	122	145	0	1	244	12	30	0	293	0	0	0	847
	7:45 AM	144	186	0	4	250	13	13	0	246	0	0	0	856
	8:00 AM	137	146	0	0	213	12	15	0	202	0	0	0	725
	8:15 AM	143	151	0	0	176	9	23	0	204	0	0	0	706
	8:30 AM	118	122	0	0	179	15	24	0	186	0	0	0	644
	8:45 AM	119	173	0	3	186	16	18	0	152	0	0	0	667
	VOLUMES	1,024	1,175	0	8	1,774	92	149	0	1,890	0	0	0	6,112
	APPROACH %	47%	53%	0%	0%	95%	5%	7%	0%	93%	0%	0%	0%	
	APP/DEPART	2,199	/	1,332	1,874	/	3,664	2,039	/	0	0	/	1,116	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	507	583	0	5	1,020	40	69	0	1,146	0	0	0	3,370
	APPROACH %	47%	53%	0%	0%	96%	4%	6%	0%	94%	0%	0%	0%	
	PEAK HR FACTOR		0.826			0.906			0.901			0.000		0.977
	APP/DEPART	1,090	/	657	1,065	/	2,166	1,215	/	0	0	/	547	0
PM	4:00 PM	231	281	0	6	190	18	13	0	135	0	0	0	874
	4:15 PM	249	289	0	1	190	14	14	0	157	0	0	0	914
	4:30 PM	256	253	0	3	197	17	25	0	119	0	0	0	870
	4:45 PM	268	278	0	3	224	26	27	0	145	0	0	0	971
	5:00 PM	259	256	0	3	203	23	27	0	155	0	0	0	926
	5:15 PM	308	253	0	4	173	13	17	0	157	0	0	0	925
	5:30 PM	275	266	0	6	190	15	17	0	128	0	0	0	897
	5:45 PM	228	237	0	8	180	20	26	0	145	0	0	0	844
	VOLUMES	2,074	2,113	0	34	1,547	146	166	0	1,141	0	0	0	7,221
	APPROACH %	50%	50%	0%	2%	90%	8%	13%	0%	87%	0%	0%	0%	
	APP/DEPART	4,187	/	2,313	1,727	/	2,688	1,307	/	0	0	/	2,220	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	1,110	1,053	0	16	790	77	88	0	585	0	0	0	3,719
	APPROACH %	51%	49%	0%	2%	89%	9%	13%	0%	87%	0%	0%	0%	
	PEAK HR FACTOR		0.964			0.873			0.924			0.000		0.958
	APP/DEPART	2,163	/	1,157	883	/	1,375	673	/	0	0	/	1,187	0



INTERSECTION TURNING MOVEMENT COUNTS

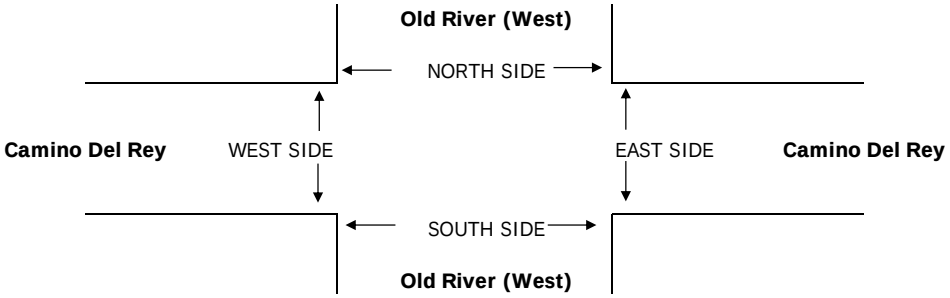
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Bonsall	PROJECT #:	SC1013
Wed, Jun 29, 16	NORTH & SOUTH:	Old River (West)	LOCATION #:	5
	EAST & WEST:	Camino Del Rey	CONTROL:	STOP S

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Old River (West)			SOUTHBOUND Old River (West)			EASTBOUND Camino Del Rey			WESTBOUND Camino Del Rey			
	LANES:	NL 0	NT X	NR 0	SL X	ST X	SR X	EL X	ET 1	ER 0	WL 0	WT 1	WR X	TOTAL
AM	7:00 AM	5	0	9	0	0	0	0	85	6	9	57	0	171
	7:15 AM	3	0	1	0	0	0	0	75	6	10	65	0	160
	7:30 AM	5	0	5	0	0	0	0	98	12	5	63	0	188
	7:45 AM	7	0	3	0	0	0	0	85	14	9	74	0	192
	8:00 AM	10	0	1	0	0	0	0	76	14	5	72	0	178
	8:15 AM	11	0	1	0	0	0	0	63	6	2	56	0	139
	8:30 AM	15	0	4	0	0	0	0	49	16	9	67	0	160
	8:45 AM	9	0	1	0	0	0	0	63	13	7	63	0	156
	VOLUMES	65	0	25	0	0	0	0	594	87	56	517	0	1,344
	APPROACH %	72%	0%	28%	0%	0%	0%	0%	87%	13%	10%	90%	0%	
	APP/DEPART	90	/	0	0	/	143	681	/	619	573	/	582	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	25	0	10	0	0	0	0	334	46	29	274	0	718
	APPROACH %	71%	0%	29%	0%	0%	0%	0%	88%	12%	10%	90%	0%	
	PEAK HR FACTOR		0.795			0.000			0.864			0.913		0.935
	APP/DEPART	35	/	0	0	/	75	380	/	344	303	/	299	0
PM	4:00 PM	17	0	7	0	0	0	0	83	10	8	108	0	233
	4:15 PM	17	0	7	0	0	0	0	89	12	6	110	0	241
	4:30 PM	12	0	7	0	0	0	0	97	14	12	84	0	226
	4:45 PM	14	0	10	0	0	0	0	77	9	6	96	0	212
	5:00 PM	10	0	4	0	0	0	0	91	14	6	103	0	228
	5:15 PM	11	0	6	0	0	0	0	71	8	9	116	0	221
	5:30 PM	9	0	7	0	0	0	0	72	7	4	76	0	175
	5:45 PM	11	0	10	0	0	0	0	83	8	7	89	0	208
	VOLUMES	101	0	58	0	0	0	0	663	82	58	782	0	1,744
	APPROACH %	64%	0%	36%	0%	0%	0%	0%	89%	11%	7%	93%	0%	
	APP/DEPART	159	/	0	0	/	140	745	/	721	840	/	883	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	60	0	31	0	0	0	0	346	45	32	398	0	912
	APPROACH %	66%	0%	34%	0%	0%	0%	0%	88%	12%	7%	93%	0%	
	PEAK HR FACTOR		0.948			0.000			0.881			0.927		0.946
	APP/DEPART	91	/	0	0	/	77	391	/	377	430	/	458	0



INTERSECTION TURNING MOVEMENT COUNTS

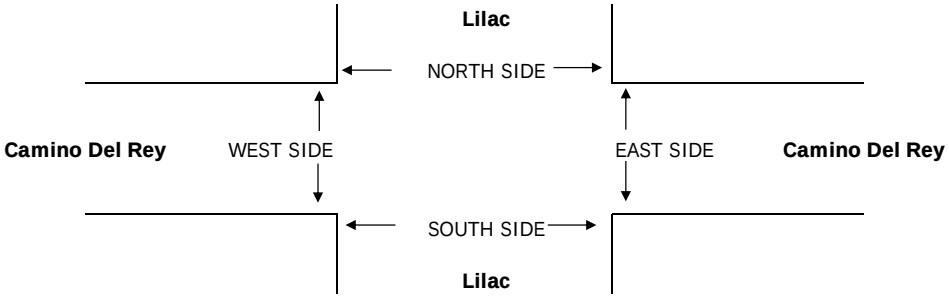
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:					
Wed, Jun 29, 16	LOCATION:	Bonsall	PROJECT #:	SC1013	
	NORTH & SOUTH:	Lilac	LOCATION #:	6	
	EAST & WEST:	Camino Del Rey	CONTROL:	STOP N	

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Lilac			SOUTHBOUND Lilac			EASTBOUND Camino Del Rey			WESTBOUND Camino Del Rey			
	LANES:	NL X	NT X	NR X	SL 1	ST X	SR 0	EL 0	ET 1	ER X	WL X	WT 1	WR 0	TOTAL
AM	7:00 AM	0	0	0	0	0	20	17	69	0	0	47	2	155
	7:15 AM	0	0	0	1	0	19	10	75	0	0	55	0	160
	7:30 AM	0	0	0	2	0	15	12	68	0	0	50	0	147
	7:45 AM	0	0	0	1	0	21	24	79	0	0	66	0	191
	8:00 AM	0	0	0	1	0	27	27	62	0	0	64	3	184
	8:15 AM	0	0	0	1	0	15	17	53	1	0	48	0	135
	8:30 AM	0	0	0	1	0	15	7	51	0	0	50	1	125
	8:45 AM	0	0	0	0	0	13	9	50	1	0	53	1	127
	VOLUMES	0	0	0	7	0	145	123	507	2	0	433	7	1,224
	APPROACH %	0%	0%	0%	5%	0%	95%	19%	80%	0%	0%	98%	2%	
	APP/DEPART	0	/	129	152	/	2	632	/	513	440	/	580	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	0	0	5	0	82	73	284	0	0	235	3	682
	APPROACH %	0%	0%	0%	6%	0%	94%	20%	80%	0%	0%	99%	1%	
	PEAK HR FACTOR		0.000			0.777			0.867			0.888		0.893
	APP/DEPART	0	/	76	87	/	0	357	/	288	238	/	318	0
PM	4:00 PM	0	0	0	0	0	16	22	65	3	0	65	0	171
	4:15 PM	0	0	0	4	0	19	21	74	0	0	96	0	214
	4:30 PM	0	0	0	4	0	19	29	67	0	0	100	1	220
	4:45 PM	0	0	0	2	0	22	20	77	0	0	65	1	187
	5:00 PM	0	0	0	1	0	18	26	65	0	0	79	3	192
	5:15 PM	0	0	0	1	0	19	10	79	0	0	108	2	219
	5:30 PM	0	0	0	1	0	17	18	63	1	0	97	1	198
	5:45 PM	0	0	0	0	0	17	16	63	0	0	67	0	163
	VOLUMES	0	0	0	13	0	147	162	553	4	0	677	8	1,564
	APPROACH %	0%	0%	0%	8%	0%	92%	23%	77%	1%	0%	99%	1%	
	APP/DEPART	0	/	168	160	/	4	719	/	566	685	/	826	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	0	0	8	0	78	85	288	0	0	352	7	818
	APPROACH %	0%	0%	0%	9%	0%	91%	23%	77%	0%	0%	98%	2%	
	PEAK HR FACTOR		0.000			0.896			0.961			0.816		0.930
	APP/DEPART	0	/	91	86	/	0	373	/	296	359	/	431	0



INTERSECTION TURNING MOVEMENT COUNTS

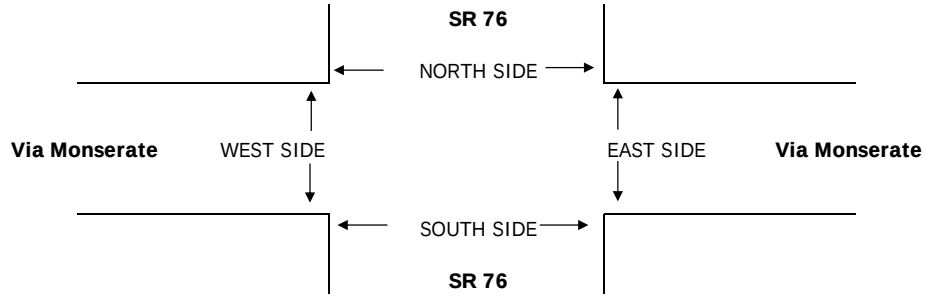
PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:	LOCATION:	Fallbrook	PROJECT #:	SC0977
Thu, May 26, 16	NORTH & SOUTH:	SR 76	LOCATION #:	3
	EAST & WEST:	Via Monserate	CONTROL:	STOP E

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR 76			SOUTHBOUND SR 76			EASTBOUND Via Monserate			WESTBOUND Via Monserate			
	LANES:	NL 1	NT 1	NR X	SL X	ST 2	SR 1	EL 0	ET X	ER 0	WL X	WT X	WR X	TOTAL
AM	7:00 AM	2	129	0	0	307	6	12	0	5	0	0	0	461
	7:15 AM	2	166	0	0	279	4	14	0	7	0	0	0	472
	7:30 AM	2	180	0	0	236	4	11	0	5	0	0	0	438
	7:45 AM	3	197	0	0	221	10	14	0	3	0	0	0	448
	8:00 AM	3	152	0	0	208	4	10	0	7	0	0	0	384
	8:15 AM	1	176	0	0	199	6	5	0	2	0	0	0	389
	8:30 AM	0	144	0	0	197	9	9	0	1	0	0	0	360
	8:45 AM	2	167	0	0	182	3	6	0	3	0	0	0	363
	VOLUMES	15	1,311	0	0	1,829	46	81	0	33	0	0	0	3,315
	APPROACH %	1%	99%	0%	0%	98%	2%	71%	0%	29%	0%	0%	0%	
	APP/DEPART	1,326	/	1,392	1,875	/	1,862	114	/	0	0	/	61	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	9	672	0	0	1,043	24	51	0	20	0	0	0	1,819
	APPROACH %	1%	99%	0%	0%	98%	2%	72%	0%	28%	0%	0%	0%	
	PEAK HR FACTOR		0.851			0.852			0.845			0.000		0.963
	APP/DEPART	681	/	723	1,067	/	1,063	71	/	0	0	/	33	0
PM	4:00 PM	1	299	0	0	206	13	7	0	3	0	0	0	529
	4:15 PM	2	311	0	0	194	12	3	0	0	0	0	0	522
	4:30 PM	1	253	0	0	232	6	5	0	3	0	0	0	500
	4:45 PM	1	337	0	0	225	7	1	0	2	0	0	0	573
	5:00 PM	2	293	0	0	225	20	3	0	0	0	0	0	543
	5:15 PM	0	281	0	0	192	7	3	0	3	0	0	0	486
	5:30 PM	2	299	0	0	213	15	5	0	3	0	0	0	537
	5:45 PM	2	259	0	0	198	10	0	0	0	0	0	0	469
	VOLUMES	11	2,332	0	0	1,685	90	27	0	14	0	0	0	4,159
	APPROACH %	0%	100%	0%	0%	95%	5%	66%	0%	34%	0%	0%	0%	
	APP/DEPART	2,343	/	2,359	1,775	/	1,699	41	/	0	0	/	101	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	5	1,210	0	0	855	49	12	0	8	0	0	0	2,139
	APPROACH %	0%	100%	0%	0%	95%	5%	60%	0%	40%	0%	0%	0%	
	PEAK HR FACTOR		0.899			0.922			0.625			0.000		0.933
	APP/DEPART	1,215	/	1,222	904	/	863	20	/	0	0	/	54	0



INTERSECTION TURNING MOVEMENT COUNTS

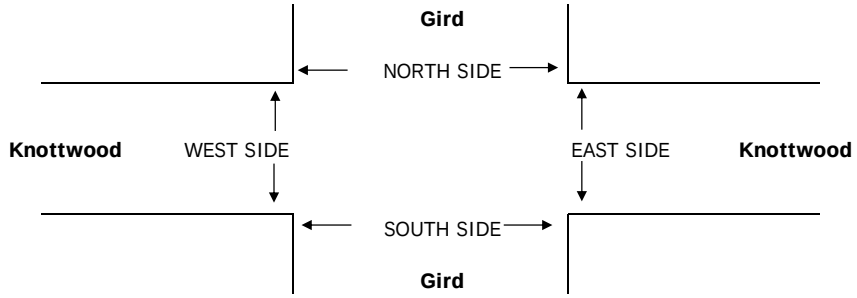
PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:	LOCATION:	Fallbrook	PROJECT #:	SC0977
Thu, May 26, 16	NORTH & SOUTH:	Gird	LOCATION #:	5
	EAST & WEST:	Knottwood	CONTROL:	STOP E

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Gird			SOUTHBOUND Gird			EASTBOUND Knottwood			WESTBOUND Knottwood			
	LANES:	NL 1	NT 1	NR X	SL X	ST 2	SR 0	EL 0	ET X	ER 0	WL X	WT X	WR X	TOTAL
AM	7:00 AM	3	15	0	0	48	5	6	0	4	0	0	0	81
	7:15 AM	1	23	0	0	51	1	7	0	5	0	0	0	88
	7:30 AM	2	22	0	0	28	4	2	0	5	0	0	0	63
	7:45 AM	2	25	0	0	37	1	3	0	8	0	0	0	76
	8:00 AM	1	18	0	0	24	5	2	0	8	0	0	0	58
	8:15 AM	3	15	0	1	33	6	5	0	1	0	0	0	64
	8:30 AM	3	23	0	0	30	2	6	0	7	0	0	0	71
	8:45 AM	6	15	0	0	19	4	4	0	2	0	0	0	50
	VOLUMES	21	156	0	1	270	28	35	0	40	0	0	0	551
	APPROACH %	12%	88%	0%	0%	90%	9%	47%	0%	53%	0%	0%	0%	
	APP/DEPART	177	/	192	299	/	310	75	/	0	0	/	49	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	8	85	0	0	164	11	18	0	22	0	0	0	308
	APPROACH %	9%	91%	0%	0%	94%	6%	45%	0%	55%	0%	0%	0%	
	PEAK HR FACTOR		0.861			0.825			0.833			0.000		0.875
	APP/DEPART	93	/	103	175	/	186	40	/	0	0	/	19	0
PM	4:00 PM	3	64	0	0	27	1	4	0	4	0	0	0	103
	4:15 PM	4	60	0	0	24	2	8	0	3	0	0	0	101
	4:30 PM	1	49	0	0	16	3	4	0	4	0	0	0	77
	4:45 PM	4	53	0	0	29	4	5	0	3	0	0	0	98
	5:00 PM	2	63	0	0	24	2	6	0	1	0	0	0	98
	5:15 PM	6	64	0	0	26	5	1	0	1	0	0	0	103
	5:30 PM	4	53	0	0	18	9	1	0	1	0	0	0	86
	5:45 PM	3	48	0	0	16	6	4	0	3	0	0	0	80
	VOLUMES	27	454	0	0	180	32	33	0	20	0	0	0	746
	APPROACH %	6%	94%	0%	0%	85%	15%	62%	0%	38%	0%	0%	0%	
	APP/DEPART	481	/	486	212	/	200	53	/	0	0	/	60	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	16	233	0	0	97	20	13	0	6	0	0	0	385
	APPROACH %	6%	94%	0%	0%	83%	17%	68%	0%	32%	0%	0%	0%	
	PEAK HR FACTOR		0.889			0.886			0.594			0.000		0.934
	APP/DEPART	249	/	245	117	/	103	19	/	0	0	/	37	0



INTERSECTION TURNING MOVEMENT COUNTS

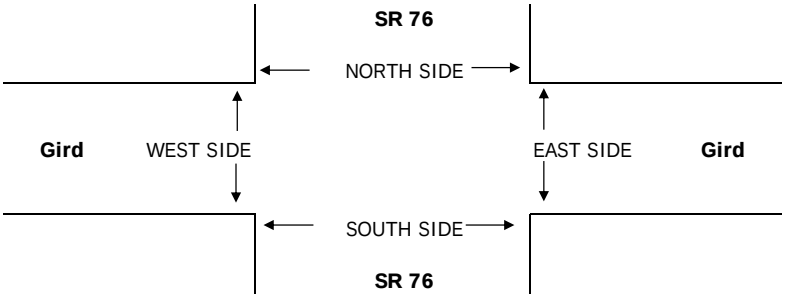
PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:	LOCATION:	Fallbrook	PROJECT #:	SC0977
Thu, May 26, 16	NORTH & SOUTH:	SR 76	LOCATION #:	6
	EAST & WEST:	Gird	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR 76			SOUTHBOUND SR 76			EASTBOUND Gird			WESTBOUND Gird			
	LANES:	NL 1	NT 1	NR X	SL X	ST 1	SR 1	EL 1	ET X	ER 1	WL X	WT X	WR X	TOTAL
AM	7:00 AM	9	127	0	0	280	11	14	0	35	0	0	0	476
	7:15 AM	9	169	0	0	240	9	20	0	46	0	0	0	493
	7:30 AM	21	162	0	0	212	7	9	0	23	0	0	0	434
	7:45 AM	17	192	0	0	196	7	13	0	30	0	0	0	455
	8:00 AM	11	161	0	0	199	11	13	0	18	0	0	0	413
	8:15 AM	8	163	0	0	182	6	13	0	23	0	0	0	395
	8:30 AM	21	144	0	0	173	8	16	0	21	0	0	0	383
	8:45 AM	13	151	0	0	173	9	9	0	13	0	0	0	368
	VOLUMES	109	1,269	0	0	1,655	68	107	0	209	0	0	0	3,417
	APPROACH %	8%	92%	0%	0%	96%	4%	34%	0%	66%	0%	0%	0%	
	APP/DEPART	1,378	/	1,376	1,723	/	1,864	316	/	0	0	/	177	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	56	650	0	0	928	34	56	0	134	0	0	0	1,858
	APPROACH %	8%	92%	0%	0%	96%	4%	29%	0%	71%	0%	0%	0%	
	PEAK HR FACTOR		0.844			0.826			0.720			0.000		0.942
	APP/DEPART	706	/	706	962	/	1,062	190	/	0	0	/	90	0
PM	4:00 PM	42	226	0	0	178	17	2	0	18	0	0	0	483
	4:15 PM	55	258	0	0	204	15	9	0	17	0	0	0	558
	4:30 PM	36	245	0	0	222	11	3	0	19	0	0	0	536
	4:45 PM	37	273	0	0	204	15	5	0	25	0	0	0	559
	5:00 PM	52	237	0	0	222	13	3	0	22	0	0	0	549
	5:15 PM	59	246	0	0	185	19	10	0	24	0	0	0	543
	5:30 PM	30	253	0	0	206	18	4	0	17	0	0	0	528
	5:45 PM	48	224	0	0	183	11	10	0	14	0	0	0	490
	VOLUMES	359	1,962	0	0	1,604	119	46	0	156	0	0	0	4,246
	APPROACH %	15%	85%	0%	0%	93%	7%	23%	0%	77%	0%	0%	0%	
	APP/DEPART	2,321	/	2,008	1,723	/	1,760	202	/	0	0	/	478	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	180	1,013	0	0	852	54	20	0	83	0	0	0	2,202
	APPROACH %	15%	85%	0%	0%	94%	6%	19%	0%	81%	0%	0%	0%	
	PEAK HR FACTOR		0.953			0.964			0.858			0.000		0.985
	APP/DEPART	1,193	/	1,033	906	/	935	103	/	0	0	/	234	0



INTERSECTION TURNING MOVEMENT COUNTS

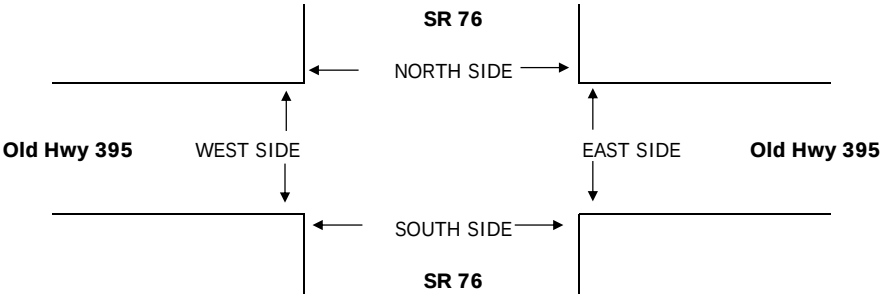
PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:	LOCATION:	Fallbrook	PROJECT #:	SC0977
Thu, May 26, 16	NORTH & SOUTH:	SR 76	LOCATION #:	7
	EAST & WEST:	Old Hwy 395	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR 76			SOUTHBOUND SR 76			EASTBOUND Old Hwy 395			WESTBOUND Old Hwy 395			
	LANES:	NL 1	NT 1.5	NR 0.5	SL 1	ST 1.5	SR 0.5	EL 0.3	ET 0.3	ER 0.3	WL 0.3	WT 0.3	WR 1.3	TOTAL
AM	7:00 AM	3	143	19	24	253	13	22	59	12	22	14	7	591
	7:15 AM	6	135	18	22	170	22	40	39	24	16	14	11	517
	7:30 AM	13	147	24	17	180	17	45	36	20	16	13	14	542
	7:45 AM	18	155	27	8	206	21	31	29	12	18	28	14	567
	8:00 AM	12	143	15	14	149	11	46	34	19	20	20	17	500
	8:15 AM	11	141	12	13	169	21	38	29	9	11	15	12	481
	8:30 AM	8	165	13	10	168	3	39	15	12	16	15	18	482
	8:45 AM	12	129	8	6	141	11	38	14	19	14	18	5	415
	VOLUMES	83	1,158	136	114	1,436	119	299	255	127	133	137	98	4,095
	APPROACH %	6%	84%	10%	7%	86%	7%	44%	37%	19%	36%	37%	27%	
	APP/DEPART	1,377	/	1,556	1,669	/	1,699	681	/	504	368	/	336	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	40	580	88	71	809	73	138	163	68	72	69	46	2,217
	APPROACH %	6%	82%	12%	7%	85%	8%	37%	44%	18%	39%	37%	25%	
	PEAK HR FACTOR		0.885			0.822			0.896			0.779		0.938
	APP/DEPART	708	/	765	953	/	950	369	/	321	187	/	181	0
PM	4:00 PM	37	224	13	14	191	102	31	21	14	14	63	25	749
	4:15 PM	33	219	13	14	194	87	32	14	12	12	44	15	689
	4:30 PM	29	208	9	18	191	73	39	18	16	17	42	27	687
	4:45 PM	33	164	16	15	157	65	31	24	18	41	49	26	639
	5:00 PM	45	225	16	12	202	88	43	21	13	18	47	15	745
	5:15 PM	48	214	17	8	177	115	32	19	19	8	60	16	733
	5:30 PM	35	210	16	13	198	106	34	22	13	18	53	19	737
	5:45 PM	38	170	12	8	163	94	39	18	13	14	36	10	615
	VOLUMES	298	1,634	112	102	1,473	730	281	157	118	142	394	153	5,594
	APPROACH %	15%	80%	5%	4%	64%	32%	51%	28%	21%	21%	57%	22%	
	APP/DEPART	2,044	/	2,068	2,305	/	1,733	556	/	371	689	/	1,422	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	161	813	65	48	734	374	140	86	63	85	209	76	2,854
	APPROACH %	15%	78%	6%	4%	63%	32%	48%	30%	22%	23%	56%	21%	
	PEAK HR FACTOR		0.908			0.912			0.938			0.797		0.958
	APP/DEPART	1,039	/	1,029	1,156	/	882	289	/	199	370	/	744	0



APPENDIX C

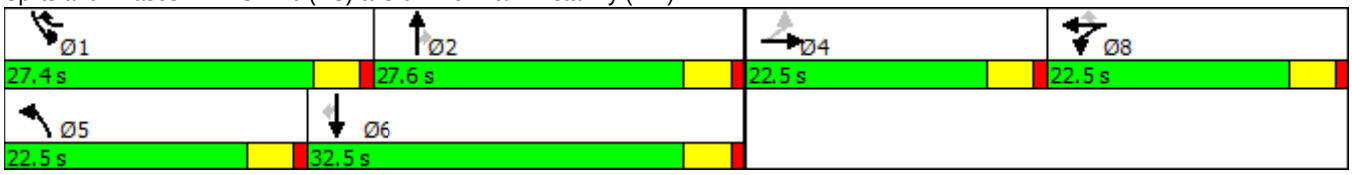
Existing Intersection Delay and Level of Service Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	53	61	235	15	429	17	638	281	502	1449	15
Future Volume (vph)	4	53	61	235	15	429	17	638	281	502	1449	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	8
Storage Length (ft)	0		0	273		0	833		540	382		100
Storage Lanes	0		0	1		1	1		1	2		1
Taper Length (ft)	25			25			25			120		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt		0.922				0.850			0.850			0.850
Flt Protected		0.998		0.950	0.958		0.950			0.950		
Satd. Flow (prot)	0	3257	0	1681	1695	1583	1770	5085	1583	3433	5085	1372
Flt Permitted		0.628		0.950	0.958		0.950			0.950		
Satd. Flow (perm)	0	2049	0	1681	1695	1583	1770	5085	1583	3433	5085	1372
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64				447			293			115
Link Speed (mph)		50			30			30			30	
Link Distance (ft)		948			495			1112			1560	
Travel Time (s)		12.9			11.3			25.3			35.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	4	55	64	245	16	447	18	665	293	523	1509	16
Shared Lane Traffic (%)				47%								
Lane Group Flow (vph)	0	123	0	130	131	447	18	665	293	523	1509	16
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	8	1	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4					8			2			6
Detector Phase	4	4		8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5	27.4	22.5	27.6	27.6	27.4	32.5	32.5
Total Split (%)	22.5%	22.5%		22.5%	22.5%	27.4%	22.5%	27.6%	27.6%	27.4%	32.5%	32.5%
Maximum Green (s)	18.0	18.0		18.0	18.0	22.9	18.0	23.1	23.1	22.9	28.0	28.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		7.7		11.5	11.5	33.9	6.5	23.8	23.8	17.8	42.1	42.1
Actuated g/C Ratio		0.10		0.15	0.15	0.44	0.08	0.31	0.31	0.23	0.55	0.55
v/c Ratio		0.47		0.51	0.51	0.47	0.12	0.42	0.42	0.66	0.54	0.02
Control Delay		25.8		39.8	39.7	3.2	38.9	24.3	5.6	32.1	14.9	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.8		39.8	39.7	3.2	38.9	24.3	5.6	32.1	14.9	0.1
LOS		C		D	D	A	D	C	A	C	B	A
Approach Delay		25.8			16.7			19.0			19.2	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 76.6			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)



HCM 2010 Signalized Intersection Summary
1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	53	61	235	15	429	17	638	281	502	1449	15
Future Volume (veh/h)	4	53	61	235	15	429	17	638	281	502	1449	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1788
Adj Flow Rate, veh/h	4	55	64	256	0	447	18	665	293	523	1509	16
Adj No. of Lanes	0	2	0	2	0	1	1	3	1	2	3	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	8	112	103	807	0	659	112	1484	462	649	2122	634
Arrive On Green	0.06	0.06	0.06	0.23	0.00	0.23	0.06	0.29	0.29	0.19	0.42	0.42
Sat Flow, veh/h	126	1731	1583	3548	0	1583	1774	5085	1583	3442	5085	1520
Grp Volume(v), veh/h	59	0	64	256	0	447	18	665	293	523	1509	16
Grp Sat Flow(s),veh/h/ln	1856	0	1583	1774	0	1583	1774	1695	1583	1721	1695	1520
Q Serve(g_s), s	2.4	0.0	3.1	4.8	0.0	18.0	0.8	8.4	12.7	11.5	19.5	0.5
Cycle Q Clear(g_c), s	2.4	0.0	3.1	4.8	0.0	18.0	0.8	8.4	12.7	11.5	19.5	0.5
Prop In Lane	0.07		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	120	0	103	807	0	659	112	1484	462	649	2122	634
V/C Ratio(X)	0.49	0.00	0.62	0.32	0.00	0.68	0.16	0.45	0.63	0.81	0.71	0.03
Avail Cap(c_a), veh/h	422	0	360	807	0	659	403	1484	462	996	2122	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	0.0	36.1	25.5	0.0	18.8	35.1	22.8	24.4	30.7	19.1	13.6
Incr Delay (d2), s/veh	3.1	0.0	6.0	0.2	0.0	2.8	0.7	1.0	6.5	2.9	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	1.5	2.3	0.0	8.4	0.4	4.1	6.4	5.7	9.5	0.2
LnGrp Delay(d),s/veh	38.8	0.0	42.1	25.7	0.0	21.6	35.8	23.8	30.9	33.6	21.2	13.7
LnGrp LOS	D		D	C		C	D	C	C	C	C	B
Approach Vol, veh/h		123			703			976			2048	
Approach Delay, s/veh		40.5			23.1			26.2			24.3	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.4	27.6		9.6	9.5	37.5		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	22.9	23.1		18.0	18.0	28.0		18.0
Max Q Clear Time (g_c+I1), s	13.5	14.7		5.1	2.8	21.5		20.0
Green Ext Time (p_c), s	1.4	7.4		0.4	0.0	5.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	138	122	139	932	1844	193
Future Volume (vph)	138	122	139	932	1844	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	84	0	756			755
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		133				210
Link Speed (mph)	30			30	30	
Link Distance (ft)	1509			1887	2556	
Travel Time (s)	34.3			42.9	58.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	133	151	1013	2004	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	133	151	1013	2004	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	42.5	42.5	9.5	9.5	30.5	30.5
Total Split (s)	42.5	42.5	14.0	77.5	63.5	63.5
Total Split (%)	35.4%	35.4%	11.7%	64.6%	52.9%	52.9%
Maximum Green (s)	38.0	38.0	9.5	73.0	59.0	59.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	31.0	31.0			19.0	19.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	13.3	13.3	9.5	73.1	59.1	59.1
Actuated g/C Ratio	0.14	0.14	0.10	0.77	0.62	0.62
v/c Ratio	0.61	0.40	0.86	0.37	0.91	0.20
Control Delay	49.3	10.2	83.5	4.4	24.8	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	10.2	83.5	4.4	24.8	1.8
LOS	D	B	F	A	C	A
Approach Delay	31.0			14.7	22.6	
Approach LOS	C			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 95.4			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 20.7		Intersection LOS: C	
Intersection Capacity Utilization 77.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: SR-76 (NS) & North River Rd (EW)

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	138	122	139	932	1844	193
Future Volume (veh/h)	138	122	139	932	1844	193
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	150	133	151	1013	2004	210
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	200	179	182	2795	2259	1011
Arrive On Green	0.11	0.11	0.10	0.79	0.64	0.64
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	150	133	151	1013	2004	210
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	7.6	7.5	7.7	7.8	43.6	5.1
Cycle Q Clear(g_c), s	7.6	7.5	7.7	7.8	43.6	5.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	200	179	182	2795	2259	1011
V/C Ratio(X)	0.75	0.74	0.83	0.36	0.89	0.21
Avail Cap(c_a), veh/h	729	651	182	2795	2259	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	39.7	40.7	2.9	13.9	7.0
Incr Delay (d2), s/veh	5.5	6.0	26.0	0.4	5.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	6.7	5.1	3.8	22.6	2.3
LnGrp Delay(d),s/veh	45.3	45.7	66.7	3.2	19.6	7.4
LnGrp LOS	D	D	E	A	B	A
Approach Vol, veh/h	283			1164	2214	
Approach Delay, s/veh	45.5			11.5	18.4	
Approach LOS	D			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		77.5		14.9	14.0	63.5		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		73.0		38.0	9.5	59.0		
Max Q Clear Time (g_c+I1), s		9.8		9.6	9.7	45.6		
Green Ext Time (p_c), s		52.4		0.9	0.0	12.7		

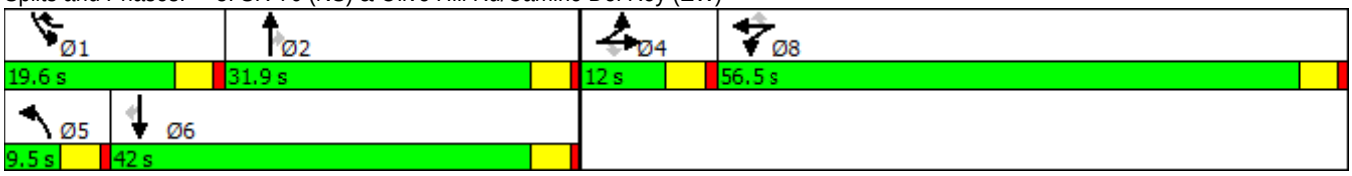
Intersection Summary	
HCM 2010 Ctrl Delay	18.3
HCM 2010 LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	156	185	159	67	173	73	856	141	384	1693	33
Future Volume (vph)	76	156	185	159	67	173	73	856	141	384	1693	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		219	190		227	834		478	600		476
Storage Lanes	2		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			55			148			95
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		480			1346			1011			2331	
Travel Time (s)		6.5			18.4			23.0			53.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	80	164	195	167	71	182	77	901	148	404	1782	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	164	195	167	71	182	77	901	148	404	1782	35
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases			4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	9.5	56.5	56.5	9.5	9.5	9.5	9.5	9.5	39.5	39.5
Total Split (s)	12.0	12.0	12.0	56.5	56.5	19.6	9.5	31.9	31.9	19.6	42.0	42.0
Total Split (%)	10.0%	10.0%	10.0%	47.1%	47.1%	16.3%	7.9%	26.6%	26.6%	16.3%	35.0%	35.0%
Maximum Green (s)	7.5	7.5	7.5	52.0	52.0	15.1	5.0	27.4	27.4	15.1	37.5	37.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)				7.0	7.0						7.0	7.0
Flash Dont Walk (s)				45.0	45.0						28.0	28.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)	7.5	7.5	7.5	12.8	12.8	32.0	5.0	27.9	27.9	14.7	37.6	37.6
Actuated g/C Ratio	0.09	0.09	0.09	0.16	0.16	0.40	0.06	0.34	0.34	0.18	0.46	0.46
v/c Ratio	0.25	0.95	0.60	0.60	0.24	0.28	0.71	0.51	0.23	0.65	0.76	0.04
Control Delay	37.4	97.6	14.5	40.8	31.4	12.2	72.9	22.9	4.8	36.6	20.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	97.6	14.5	40.8	31.4	12.2	72.9	22.9	4.8	36.6	20.9	0.1
LOS	D	F	B	D	C	B	E	C	A	D	C	A
Approach Delay		49.7			26.8			24.0			23.4	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 80.9			
Natural Cycle: 135			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 26.7		Intersection LOS: C	
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)



HCM 2010 Signalized Intersection Summary
3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	156	185	159	67	173	73	856	141	384	1693	33
Future Volume (veh/h)	76	156	185	159	67	173	73	856	141	384	1693	33
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	164	195	167	71	182	77	901	148	404	1782	35
Adj No. of Lanes	2	1	1	1	1	1	1	3	1	2	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	179	152	242	254	449	99	1981	617	506	2445	761
Arrive On Green	0.10	0.10	0.10	0.14	0.14	0.14	0.06	0.39	0.39	0.15	0.48	0.48
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	1774	5085	1583	3442	5085	1583
Grp Volume(v), veh/h	80	164	195	167	71	182	77	901	148	404	1782	35
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1774	1695	1583	1721	1695	1583
Q Serve(g_s), s	1.7	6.8	7.5	7.0	2.7	7.3	3.3	10.3	4.9	8.8	21.8	0.9
Cycle Q Clear(g_c), s	1.7	6.8	7.5	7.0	2.7	7.3	3.3	10.3	4.9	8.8	21.8	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	331	179	152	242	254	449	99	1981	617	506	2445	761
V/C Ratio(X)	0.24	0.92	1.28	0.69	0.28	0.41	0.78	0.45	0.24	0.80	0.73	0.05
Avail Cap(c_a), veh/h	331	179	152	1183	1242	1289	114	1981	617	666	2445	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	34.9	35.2	32.1	30.2	22.6	36.4	17.7	16.0	32.1	16.2	10.7
Incr Delay (d2), s/veh	0.4	43.8	167.0	3.5	0.6	0.6	25.5	0.8	0.9	5.1	1.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.7	10.3	3.7	1.4	3.3	2.3	4.9	2.3	4.6	10.5	0.4
LnGrp Delay(d),s/veh	33.0	78.8	202.3	35.6	30.8	23.2	61.9	18.4	17.0	37.3	18.1	10.9
LnGrp LOS	C	E	F	D	C	C	E	B	B	D	B	B
Approach Vol, veh/h		439			420			1126			2221	
Approach Delay, s/veh		125.3			29.4			21.2			21.5	
Approach LOS		F			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.0	34.9		12.0	8.8	42.0		15.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	15.1	27.4		7.5	5.0	37.5		52.0
Max Q Clear Time (g_c+I1), s	10.8	12.3		9.5	5.3	23.8		9.3
Green Ext Time (p_c), s	0.6	13.6		0.0	0.0	12.4		1.4

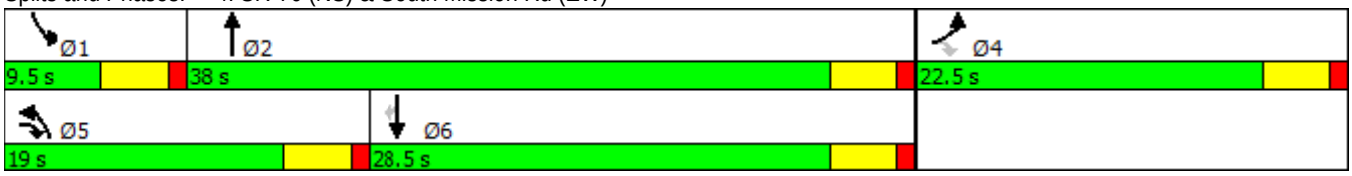
Intersection Summary	
HCM 2010 Ctrl Delay	33.0
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	0	1146	0	0	0	507	583	0	5	1020	40
Future Volume (vph)	69	0	1146	0	0	0	507	583	0	5	1020	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		0	439		0	495		0
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25			25			120			25		
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850									0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3433	0	2787	0	0	0	3433	3539	0	1770	3539	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	0	2787	0	0	0	3433	3539	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			30									164
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			263			2331			1378	
Travel Time (s)		19.9			6.0			53.0			31.3	
Peak Hour Factor	0.98	0.92	0.98	0.92	0.92	0.92	0.98	0.98	0.92	0.92	0.98	0.98
Adj. Flow (vph)	70	0	1169	0	0	0	517	595	0	5	1041	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	0	1169	0	0	0	517	595	0	5	1041	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1		1				1	2		1	2	1
Detector Template	Left		Right				Left	Thru		Left	Thru	Right
Leading Detector (ft)	20		20				20	100		20	100	20
Trailing Detector (ft)	0		0				0	0		0	0	0
Detector 1 Position(ft)	0		0				0	0		0	0	0
Detector 1 Size(ft)	20		20				20	6		20	6	20
Detector 1 Type	Cl+Ex		Cl+Ex				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot		pm+ov				Prot	NA		Prot	NA	Perm
Protected Phases	4		5				5	2		1	6	
Permitted Phases			4									6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4		5				5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0		5.0				5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		9.5				9.5	22.5		9.5	22.5	22.5
Total Split (s)	22.5		19.0				19.0	38.0		9.5	28.5	28.5
Total Split (%)	32.1%		27.1%				27.1%	54.3%		13.6%	40.7%	40.7%
Maximum Green (s)	18.0		14.5				14.5	33.5		5.0	24.0	24.0
Yellow Time (s)	3.5		3.5				3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0				1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5				4.5	4.5		4.5	4.5	4.5
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0		3.0	3.0	3.0
Recall Mode	None		None				None	Max		None	Max	Max
Walk Time (s)	7.0							7.0			7.0	7.0
Flash Dont Walk (s)	11.0							11.0			11.0	11.0
Pedestrian Calls (#/hr)	0							0			0	0
Act Effct Green (s)	6.6		21.1				14.7	43.8		5.1	24.3	24.3
Actuated g/C Ratio	0.12		0.39				0.27	0.80		0.09	0.45	0.45
v/c Ratio	0.17		1.06				0.56	0.21		0.03	0.66	0.05
Control Delay	24.0		64.1				21.1	3.5		25.6	15.6	0.1
Queue Delay	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Delay	24.0		64.1				21.1	3.5		25.6	15.6	0.1
LOS	C		E				C	A		C	B	A
Approach Delay		61.8						11.7			15.0	
Approach LOS		E						B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 54.5			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 30.8		Intersection LOS: C	
Intersection Capacity Utilization 75.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 4: SR-76 (NS) & South Mission Rd (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	0	1146	0	0	0	507	583	0	5	1020	40
Future Volume (veh/h)	69	0	1146	0	0	0	507	583	0	5	1020	40
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	70	0	1169				517	595	0	5	1041	41
Adj No. of Lanes	2	0	2				2	2	0	1	2	1
Peak Hour Factor	0.98	0.92	0.98				0.98	0.98	0.92	0.92	0.98	0.98
Percent Heavy Veh, %	2	0	2				2	2	0	2	2	2
Cap, veh/h	912	0	1247				628	1874	0	12	1251	560
Arrive On Green	0.27	0.00	0.27				0.18	0.53	0.00	0.01	0.35	0.35
Sat Flow, veh/h	3442	0	2787				3442	3632	0	1774	3539	1583
Grp Volume(v), veh/h	70	0	1169				517	595	0	5	1041	41
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1721	1770	0	1774	1770	1583
Q Serve(g_s), s	1.0	0.0	18.0				9.8	6.5	0.0	0.2	18.3	1.2
Cycle Q Clear(g_c), s	1.0	0.0	18.0				9.8	6.5	0.0	0.2	18.3	1.2
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	912	0	1247				628	1874	0	12	1251	560
V/C Ratio(X)	0.08	0.00	0.94				0.82	0.32	0.00	0.43	0.83	0.07
Avail Cap(c_a), veh/h	912	0	1247				735	1874	0	131	1251	560
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.7	0.0	17.8				26.7	9.0	0.0	33.6	20.1	14.6
Incr Delay (d2), s/veh	0.0	0.0	13.2				6.6	0.4	0.0	22.5	6.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	19.3				5.2	3.3	0.0	0.2	10.0	0.6
LnGrp Delay(d),s/veh	18.7	0.0	31.1				33.3	9.5	0.0	56.1	26.7	14.8
LnGrp LOS	B		C				C	A		E	C	B
Approach Vol, veh/h		1239						1112			1087	
Approach Delay, s/veh		30.4						20.5			26.3	
Approach LOS		C						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	4.9	40.4		22.5	16.9	28.5		
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s	5.0	33.5		18.0	14.5	24.0		
Max Q Clear Time (g_c+I1), s	2.2	8.5		20.0	11.8	20.3		
Green Ext Time (p_c), s	0.0	13.6		0.0	0.6	3.0		

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	485	196	0	304	95	0
Future Volume (vph)	485	196	0	304	95	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.961					
Flt Protected					0.950	
Satd. Flow (prot)	1790	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1790	0	0	1863	1770	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	1346			174	267	
Travel Time (s)	18.4			2.4	6.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	516	209	0	323	101	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	725	0	0	323	101	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	485	196	0	304	95	0
Future Vol, veh/h	485	196	0	304	95	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	516	209	0	323	101	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	724	0	943	620
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	323	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	879	-	291	488
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	734	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	879	-	291	488
Mov Cap-2 Maneuver	-	-	-	-	291	-
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	734	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	23.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	291	-	-	879	-
HCM Lane V/C Ratio	0.347	-	-	-	-
HCM Control Delay (s)	23.8	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.5	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	485	0	124	304	0	40
Future Volume (vph)	485	0	124	304	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.986		
Satd. Flow (prot)	1863	0	0	1837	1611	0
Flt Permitted				0.986		
Satd. Flow (perm)	1863	0	0	1837	1611	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	174			723	234	
Travel Time (s)	2.4			9.9	5.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	516	0	132	323	0	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	516	0	0	455	43	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			

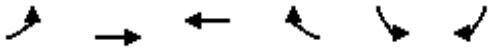
Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	485	0	124	304	0	40
Future Vol, veh/h	485	0	124	304	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	516	0	132	323	0	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	516	0	1103	516
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	587	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1050	-	234	559
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	556	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1050	-	198	559
Mov Cap-2 Maneuver	-	-	-	-	198	-
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	471	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	559	-	-	1050	-
HCM Lane V/C Ratio	0.076	-	-	0.126	-
HCM Control Delay (s)	12	-	-	8.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.4	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	107	418	319	3	5	109
Future Volume (vph)	107	418	319	3	5	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	68
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected		0.990			0.950	
Satd. Flow (prot)	0	1844	1863	1583	1770	1583
Flt Permitted		0.990			0.950	
Satd. Flow (perm)	0	1844	1863	1583	1770	1583
Link Speed (mph)		50	50		45	
Link Distance (ft)		951	613		780	
Travel Time (s)		13.0	8.4		11.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	120	470	358	3	6	122
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	590	358	3	6	122
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

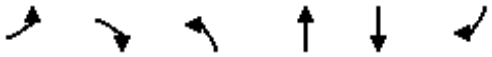
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	107	418	319	3	5	109
Future Vol, veh/h	107	418	319	3	5	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	0	68
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	470	358	3	6	122

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	358	0	-	0	1068	358
Stage 1	-	-	-	-	358	-
Stage 2	-	-	-	-	710	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1201	-	-	-	245	686
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	487	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1201	-	-	-	212	686
Mov Cap-2 Maneuver	-	-	-	-	212	-
Stage 1	-	-	-	-	707	-
Stage 2	-	-	-	-	421	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1201	-	-	-	212	686
HCM Lane V/C Ratio	0.1	-	-	-	0.026	0.179
HCM Control Delay (s)	8.3	0	-	-	22.4	11.4
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1	0.6



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	51	20	9	672	1043	24
Future Volume (vph)	51	20	9	672	1043	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	550			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.997	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1857	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1857	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1025			6793	3274	
Travel Time (s)	23.3			154.4	74.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	53	21	9	700	1086	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	21	9	700	1111	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.3%		ICU Level of Service C	
Analysis Period (min) 15			

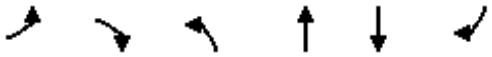
Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	20	9	672	1043	24
Future Vol, veh/h	51	20	9	672	1043	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	550	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	21	9	700	1086	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1818	1099	1111	0	-	0
Stage 1	1099	-	-	-	-	-
Stage 2	719	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	86	258	629	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	483	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	85	258	629	-	-	-
Mov Cap-2 Maneuver	85	-	-	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	476	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	78.2	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	629	-	85	258	-	-
HCM Lane V/C Ratio	0.015	-	0.625	0.081	-	-
HCM Control Delay (s)	10.8	-	100.9	20.2	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0	-	2.9	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	22	8	85	164	11
Future Volume (vph)	18	22	8	85	164	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.991	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1846	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1846	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	531			4215	454	
Travel Time (s)	12.1			95.8	10.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	20	25	9	97	186	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	25	9	97	199	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane					Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.3%		ICU Level of Service A	
Analysis Period (min) 15			

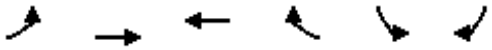
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	22	8	85	164	11
Future Vol, veh/h	18	22	8	85	164	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	25	9	97	186	13

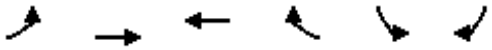
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	308	193	199	0	-	0
Stage 1	193	-	-	-	-	-
Stage 2	115	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	684	849	1373	-	-	-
Stage 1	840	-	-	-	-	-
Stage 2	910	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	680	849	1373	-	-	-
Mov Cap-2 Maneuver	762	-	-	-	-	-
Stage 1	840	-	-	-	-	-
Stage 2	904	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1373	-	762	849	-	-
HCM Lane V/C Ratio	0.007	-	0.027	0.029	-	-
HCM Control Delay (s)	7.6	-	9.9	9.4	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.1	-	-



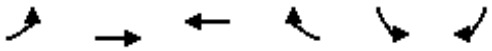
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	650	928	34	56	134
Future Volume (vph)	56	650	928	34	56	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	490			0	0	228
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1853	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1853	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			4			143
Link Speed (mph)		30	30		50	
Link Distance (ft)		3274	12216		4215	
Travel Time (s)		74.4	277.6		57.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	60	691	987	36	60	143
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	691	1023	0	60	143
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	22.5	22.5		22.5	22.5
Total Split (s)	9.8	67.4	57.6		22.6	22.6
Total Split (%)	10.9%	74.9%	64.0%		25.1%	25.1%
Maximum Green (s)	5.3	62.9	53.1		18.1	18.1
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	Max	Max		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	5.3	65.8	57.7		8.2	8.2
Actuated g/C Ratio	0.06	0.79	0.70		0.10	0.10
v/c Ratio	0.53	0.47	0.79		0.34	0.50
Control Delay	54.9	4.3	16.2		38.8	12.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	54.9	4.3	16.2		38.8	12.8
LOS	D	A	B		D	B
Approach Delay		8.4	16.2		20.5	
Approach LOS		A	B		C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 83			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 13.7		Intersection LOS: B	
Intersection Capacity Utilization 66.7%		ICU Level of Service C	
Analysis Period (min) 15			

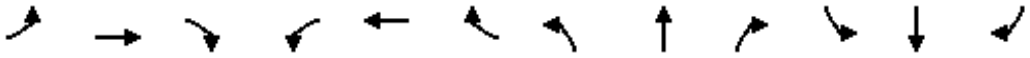
Splits and Phases: 10: SR-76 (EW) & Gird Road (NS)



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	56	650	928	34	56	134
Future Volume (veh/h)	56	650	928	34	56	134
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	60	691	987	36	60	143
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	81	1441	1201	44	205	183
Arrive On Green	0.05	0.77	0.67	0.67	0.12	0.12
Sat Flow, veh/h	1774	1863	1786	65	1774	1583
Grp Volume(v), veh/h	60	691	0	1023	60	143
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1851	1774	1583
Q Serve(g_s), s	2.7	10.9	0.0	32.9	2.5	7.1
Cycle Q Clear(g_c), s	2.7	10.9	0.0	32.9	2.5	7.1
Prop In Lane	1.00			0.04	1.00	1.00
Lane Grp Cap(c), veh/h	81	1441	0	1245	205	183
V/C Ratio(X)	0.74	0.48	0.00	0.82	0.29	0.78
Avail Cap(c_a), veh/h	116	1441	0	1245	395	352
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.3	3.3	0.0	9.7	32.9	34.9
Incr Delay (d2), s/veh	14.0	1.1	0.0	6.2	0.8	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.8	0.0	18.6	1.3	6.4
LnGrp Delay(d),s/veh	52.3	4.5	0.0	15.9	33.7	42.0
LnGrp LOS	D	A		B	C	D
Approach Vol, veh/h		751	1023		203	
Approach Delay, s/veh		8.3	15.9		39.5	
Approach LOS		A	B		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				67.4		13.9	8.2	59.2
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				62.9		18.1	5.3	53.1
Max Q Clear Time (g_c+I1), s				12.9		9.1	4.7	34.9
Green Ext Time (p_c), s				22.3		0.4	0.0	12.4

Intersection Summary	
HCM 2010 Ctrl Delay	15.4
HCM 2010 LOS	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	580	88	71	809	73	72	69	46	138	163	68
Future Volume (vph)	40	580	88	71	809	73	72	69	46	138	163	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	503		0	275		0	0		194	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.980			0.988			0.995	0.850		0.975	
Flt Protected	0.950			0.950				0.976			0.982	
Satd. Flow (prot)	1770	3468	0	1770	3497	0	0	1719	1504	0	1783	0
Flt Permitted	0.950			0.950				0.695			0.808	
Satd. Flow (perm)	1770	3468	0	1770	3497	0	0	1224	1504	0	1467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			10			3	73		20	
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		12216			518			1079			789	
Travel Time (s)		151.4			6.4			24.5			17.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	43	617	94	76	861	78	77	73	49	147	173	72
Shared Lane Traffic (%)									10%			
Lane Group Flow (vph)	43	711	0	76	939	0	0	155	44	0	392	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		53.5	53.5	53.5	42.5	42.5	
Total Split (s)	9.5	26.7		9.8	27.0		53.5	53.5	53.5	53.5	53.5	
Total Split (%)	10.6%	29.7%		10.9%	30.0%		59.4%	59.4%	59.4%	59.4%	59.4%	
Maximum Green (s)	5.0	22.2		5.3	22.5		49.0	49.0	49.0	49.0	49.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5	4.5		4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		None	Max		None	None	None	None	None	
Walk Time (s)		7.0					7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0					42.0	42.0	42.0	31.0	31.0	
Pedestrian Calls (#/hr)		0					0	0	0	0	0	
Act Effct Green (s)	5.2	23.0		5.5	27.1			20.2	20.2		20.2	
Actuated g/C Ratio	0.09	0.38		0.09	0.45			0.34	0.34		0.34	
v/c Ratio	0.28	0.53		0.47	0.59			0.37	0.08		0.77	
Control Delay	34.6	18.0		41.3	17.6			17.5	1.9		28.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	34.6	18.0		41.3	17.6			17.5	1.9		28.0	
LOS	C	B		D	B			B	A		C	
Approach Delay		19.0			19.3			14.1			28.0	
Approach LOS		B			B			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 59.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 11: Old Highway 395 (NS) & SR-76 (EW)

HCM 2010 Signalized Intersection Summary
11: Old Highway 395 (NS) & SR-76 (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	580	88	71	809	73	72	69	46	138	163	68
Future Volume (veh/h)	40	580	88	71	809	73	72	69	46	138	163	68
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	43	617	94	76	861	78	77	73	49	147	173	72
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	1126	171	106	1256	114	292	250	558	242	254	93
Arrive On Green	0.04	0.37	0.37	0.06	0.38	0.38	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1774	3081	469	1774	3283	297	575	710	1583	455	719	264
Grp Volume(v), veh/h	43	354	357	76	464	475	150	0	49	392	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1780	1774	1770	1810	1284	0	1583	1438	0	0
Q Serve(g_s), s	1.4	9.6	9.7	2.6	13.3	13.3	0.0	0.0	1.3	10.8	0.0	0.0
Cycle Q Clear(g_c), s	1.4	9.6	9.7	2.6	13.3	13.3	4.5	0.0	1.3	15.3	0.0	0.0
Prop In Lane	1.00		0.26	1.00		0.16	0.51		1.00	0.37		0.18
Lane Grp Cap(c), veh/h	75	647	651	106	677	692	543	0	558	589	0	0
V/C Ratio(X)	0.57	0.55	0.55	0.72	0.69	0.69	0.28	0.00	0.09	0.67	0.00	0.00
Avail Cap(c_a), veh/h	146	647	651	155	677	692	1177	0	1277	1288	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.5	15.3	15.3	28.1	15.7	15.7	14.0	0.0	13.1	18.0	0.0	0.0
Incr Delay (d2), s/veh	6.6	3.3	3.3	8.9	5.6	5.5	0.3	0.0	0.1	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.2	5.4	1.5	7.5	7.6	1.8	0.0	0.6	6.1	0.0	0.0
LnGrp Delay(d),s/veh	35.2	18.6	18.6	36.9	21.3	21.2	14.3	0.0	13.2	19.3	0.0	0.0
LnGrp LOS	D	B	B	D	C	C	B		B	B		
Approach Vol, veh/h		754			1015			199			392	
Approach Delay, s/veh		19.5			22.4			14.0			19.3	
Approach LOS		B			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		25.9	8.1	26.7		25.9	7.1	27.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		49.0	5.3	22.2		49.0	5.0	22.5
Max Q Clear Time (g_c+I1), s		6.5	4.6	11.7		17.3	3.4	15.3
Green Ext Time (p_c), s		4.2	0.0	6.2		4.1	0.0	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	20.3
HCM 2010 LOS	C

Notes

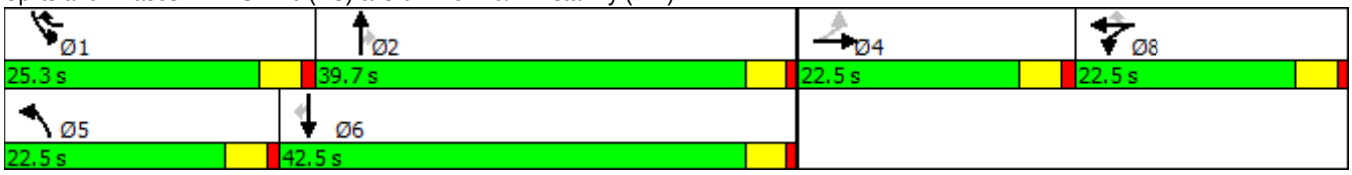
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	31	69	193	26	553	52	1519	424	597	949	16
Future Volume (vph)	16	31	69	193	26	553	52	1519	424	597	949	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	8
Storage Length (ft)	0		0	273		0	833		540	382		100
Storage Lanes	0		0	1		1	1		1	2		1
Taper Length (ft)	25			25			25			120		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt		0.911				0.850			0.850			0.850
Flt Protected		0.993		0.950	0.963		0.950			0.950		
Satd. Flow (prot)	0	3202	0	1681	1704	1583	1770	5085	1583	3433	5085	1372
Flt Permitted		0.622		0.950	0.963		0.950			0.950		
Satd. Flow (perm)	0	2005	0	1681	1704	1583	1770	5085	1583	3433	5085	1372
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		75				324			461			104
Link Speed (mph)		50			30			30			30	
Link Distance (ft)		948			495			1112			1560	
Travel Time (s)		12.9			11.3			25.3			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	34	75	210	28	601	57	1651	461	649	1032	17
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	126	0	118	120	601	57	1651	461	649	1032	17
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	8	1	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4					8			2			6
Detector Phase	4	4		8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5	25.3	22.5	39.7	39.7	25.3	42.5	42.5
Total Split (%)	20.5%	20.5%		20.5%	20.5%	23.0%	20.5%	36.1%	36.1%	23.0%	38.6%	38.6%
Maximum Green (s)	18.0	18.0		18.0	18.0	20.8	18.0	35.2	35.2	20.8	38.0	38.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		8.2		11.9	11.9	37.4	8.4	35.4	35.4	20.9	50.0	50.0
Actuated g/C Ratio		0.09		0.13	0.13	0.40	0.09	0.37	0.37	0.22	0.53	0.53
v/c Ratio		0.52		0.56	0.56	0.73	0.36	0.87	0.52	0.86	0.38	0.02
Control Delay		27.2		49.5	49.4	16.8	48.0	34.4	4.7	48.9	15.6	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		27.2		49.5	49.4	16.8	48.0	34.4	4.7	48.9	15.6	0.1
LOS		C		D	D	B	D	C	A	D	B	A
Approach Delay		27.2			26.1			28.4			28.2	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 94.5			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 27.9		Intersection LOS: C	
Intersection Capacity Utilization 79.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)



HCM 2010 Signalized Intersection Summary
1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	31	69	193	26	553	52	1519	424	597	949	16
Future Volume (veh/h)	16	31	69	193	26	553	52	1519	424	597	949	16
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1788
Adj Flow Rate, veh/h	17	34	75	230	0	601	57	1651	461	649	1032	17
Adj No. of Lanes	0	2	0	2	0	1	1	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	83	108	650	0	618	93	1822	567	712	2607	779
Arrive On Green	0.07	0.07	0.07	0.18	0.00	0.18	0.05	0.36	0.36	0.21	0.51	0.51
Sat Flow, veh/h	611	1221	1583	3548	0	1583	1774	5085	1583	3442	5085	1520
Grp Volume(v), veh/h	51	0	75	230	0	601	57	1651	461	649	1032	17
Grp Sat Flow(s),veh/h/ln	1832	0	1583	1774	0	1583	1774	1695	1583	1721	1695	1520
Q Serve(g_s), s	2.6	0.0	4.6	5.6	0.0	18.0	3.1	30.3	25.9	18.1	12.2	0.5
Cycle Q Clear(g_c), s	2.6	0.0	4.6	5.6	0.0	18.0	3.1	30.3	25.9	18.1	12.2	0.5
Prop In Lane	0.33		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	0	108	650	0	618	93	1822	567	712	2607	779
V/C Ratio(X)	0.41	0.00	0.69	0.35	0.00	0.97	0.61	0.91	0.81	0.91	0.40	0.02
Avail Cap(c_a), veh/h	336	0	290	650	0	618	325	1822	567	729	2607	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.9	0.0	44.8	35.0	0.0	29.4	45.6	29.9	28.5	38.1	14.6	11.8
Incr Delay (d2), s/veh	2.1	0.0	7.7	0.3	0.0	29.4	6.3	8.0	12.0	15.5	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.2	2.7	0.0	21.1	1.7	15.4	13.2	10.1	5.7	0.2
LnGrp Delay(d),s/veh	46.0	0.0	52.5	35.4	0.0	58.8	51.9	38.0	40.6	53.6	15.1	11.8
LnGrp LOS	D		D	D		E	D	D	D	D	B	B
Approach Vol, veh/h		126			831			2169			1698	
Approach Delay, s/veh		49.9			52.3			38.9			29.8	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	24.8	39.7		11.2	9.7	54.9		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.8	35.2		18.0	18.0	38.0		18.0
Max Q Clear Time (g_c+I1), s	20.1	32.3		6.6	5.1	14.2		20.0
Green Ext Time (p_c), s	0.2	2.8		0.4	0.1	21.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.3
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	172	180	99	1964	1232	148
Future Volume (vph)	172	180	99	1964	1232	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	84	0	756			755
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		184				151
Link Speed (mph)	30			30	30	
Link Distance (ft)	1509			1887	2556	
Travel Time (s)	34.3			42.9	58.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	176	184	101	2004	1257	151
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	184	101	2004	1257	151
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	42.5	42.5	9.5	22.5	30.5	30.5
Total Split (s)	42.5	42.5	13.6	62.5	48.9	48.9
Total Split (%)	40.5%	40.5%	13.0%	59.5%	46.6%	46.6%
Maximum Green (s)	38.0	38.0	9.1	58.0	44.4	44.4
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	31.0	31.0			19.0	19.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	13.2	13.2	8.6	58.1	47.4	47.4
Actuated g/C Ratio	0.16	0.16	0.11	0.72	0.59	0.59
v/c Ratio	0.61	0.45	0.53	0.78	0.60	0.15
Control Delay	40.3	8.4	45.8	10.6	13.5	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	8.4	45.8	10.6	13.5	2.3
LOS	D	A	D	B	B	A
Approach Delay	24.0			12.3	12.3	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 80.3			
Natural Cycle: 105			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 13.4		Intersection LOS: B	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: SR-76 (NS) & North River Rd (EW)

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	172	180	99	1964	1232	148
Future Volume (veh/h)	172	180	99	1964	1232	148
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	176	184	101	2004	1257	151
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	268	240	129	2600	2140	958
Arrive On Green	0.15	0.15	0.07	0.73	0.60	0.60
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	176	184	101	2004	1257	151
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	7.4	8.8	4.4	27.3	17.2	3.3
Cycle Q Clear(g_c), s	7.4	8.8	4.4	27.3	17.2	3.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	268	240	129	2600	2140	958
V/C Ratio(X)	0.66	0.77	0.78	0.77	0.59	0.16
Avail Cap(c_a), veh/h	854	762	205	2600	2140	958
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	32.2	36.0	6.4	9.6	6.8
Incr Delay (d2), s/veh	2.7	5.1	9.7	2.3	1.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	7.8	2.5	13.9	8.6	1.5
LnGrp Delay(d),s/veh	34.3	37.3	45.7	8.7	10.8	7.2
LnGrp LOS	C	D	D	A	B	A
Approach Vol, veh/h	360			2105	1408	
Approach Delay, s/veh	35.8			10.5	10.4	
Approach LOS	D			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		62.5		16.4	10.3	52.2		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		58.0		38.0	9.1	44.4		
Max Q Clear Time (g_c+I1), s		29.3		10.8	6.4	19.2		
Green Ext Time (p_c), s		26.8		1.1	0.0	23.7		

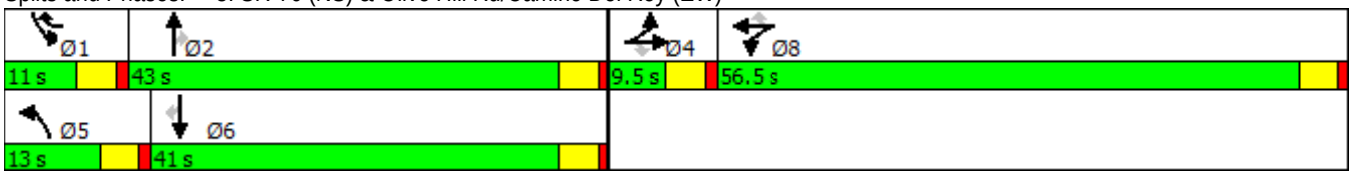
Intersection Summary	
HCM 2010 Ctrl Delay	12.8
HCM 2010 LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	62	115	99	94	318	167	1736	159	200	1125	56
Future Volume (vph)	119	62	115	99	94	318	167	1736	159	200	1125	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		219	190		227	834		478	600		476
Storage Lanes	2		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			55			166			95
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		480			1346			1011			2331	
Travel Time (s)		6.5			18.4			23.0			53.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	124	65	120	103	98	331	174	1808	166	208	1172	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	65	120	103	98	331	174	1808	166	208	1172	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases			4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	9.5	56.5	56.5	9.5	9.5	9.5	9.5	9.5	39.5	39.5
Total Split (s)	9.5	9.5	9.5	56.5	56.5	11.0	13.0	43.0	43.0	11.0	41.0	41.0
Total Split (%)	7.9%	7.9%	7.9%	47.1%	47.1%	9.2%	10.8%	35.8%	35.8%	9.2%	34.2%	34.2%
Maximum Green (s)	5.0	5.0	5.0	52.0	52.0	6.5	8.5	38.5	38.5	6.5	36.5	36.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)				7.0	7.0						7.0	7.0
Flash Dont Walk (s)				45.0	45.0						28.0	28.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)	5.0	5.0	5.0	9.8	9.8	20.8	8.5	38.5	38.5	6.5	36.5	36.5
Actuated g/C Ratio	0.06	0.06	0.06	0.13	0.13	0.27	0.11	0.49	0.49	0.08	0.47	0.47
v/c Ratio	0.56	0.55	0.56	0.46	0.42	0.71	0.90	0.72	0.19	0.73	0.49	0.07
Control Delay	46.6	54.8	18.7	38.5	36.9	30.9	81.6	17.8	2.7	51.6	15.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	54.8	18.7	38.5	36.9	30.9	81.6	17.8	2.7	51.6	15.4	1.4
LOS	D	D	B	D	D	C	F	B	A	D	B	A
Approach Delay		37.5			33.5			21.8			20.1	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 77.8			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 23.7		Intersection LOS: C	
Intersection Capacity Utilization 68.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)



HCM 2010 Signalized Intersection Summary
3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	62	115	99	94	318	167	1736	159	200	1125	56
Future Volume (veh/h)	119	62	115	99	94	318	167	1736	159	200	1125	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	124	65	120	103	98	331	174	1808	166	208	1172	58
Adj No. of Lanes	2	1	1	1	1	1	1	3	1	2	3	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	106	90	405	426	479	171	2221	692	254	2106	656
Arrive On Green	0.06	0.06	0.06	0.23	0.23	0.23	0.10	0.44	0.44	0.07	0.41	0.41
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	1774	5085	1583	3442	5085	1583
Grp Volume(v), veh/h	124	65	120	103	98	331	174	1808	166	208	1172	58
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1774	1695	1583	1721	1695	1583
Q Serve(g_s), s	3.1	3.0	5.0	4.2	3.8	16.3	8.5	27.4	5.8	5.3	15.5	2.0
Cycle Q Clear(g_c), s	3.1	3.0	5.0	4.2	3.8	16.3	8.5	27.4	5.8	5.3	15.5	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	195	106	90	405	426	479	171	2221	692	254	2106	656
V/C Ratio(X)	0.64	0.62	1.34	0.25	0.23	0.69	1.02	0.81	0.24	0.82	0.56	0.09
Avail Cap(c_a), veh/h	195	106	90	1047	1099	1051	171	2221	692	254	2106	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	40.6	41.6	27.8	27.7	27.1	39.8	21.7	15.6	40.2	19.7	15.7
Incr Delay (d2), s/veh	6.6	10.2	208.9	0.3	0.3	1.8	73.3	3.4	0.8	18.8	1.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.9	7.4	2.1	2.0	7.3	7.6	13.4	2.7	3.1	7.4	0.9
LnGrp Delay(d),s/veh	47.3	50.8	250.5	28.2	28.0	28.9	113.3	25.1	16.4	59.0	20.7	16.0
LnGrp LOS	D	D	F	C	C	C	F	C	B	E	C	B
Approach Vol, veh/h		309			532			2148			1438	
Approach Delay, s/veh		126.9			28.6			31.6			26.1	
Approach LOS		F			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	43.0		9.5	13.0	41.0		24.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	6.5	38.5		5.0	8.5	36.5		52.0
Max Q Clear Time (g_c+I1), s	7.3	29.4		7.0	10.5	17.5		18.3
Green Ext Time (p_c), s	0.0	8.7		0.0	0.0	17.5		1.9

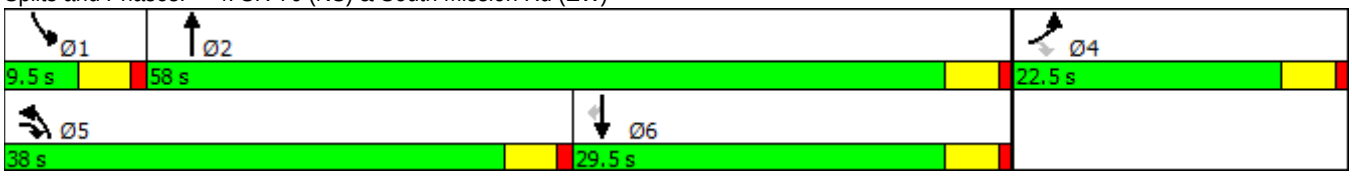
Intersection Summary	
HCM 2010 Ctrl Delay	36.1
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	0	585	0	0	0	1110	1053	0	16	790	77
Future Volume (vph)	88	0	585	0	0	0	1110	1053	0	16	790	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		0	439		0	495		0
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25			25			120			25		
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850									0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3433	0	2787	0	0	0	3433	3539	0	1770	3539	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	0	2787	0	0	0	3433	3539	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			34									127
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			263			2331			1378	
Travel Time (s)		19.9			6.0			53.0			31.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	92	0	609	0	0	0	1156	1097	0	17	823	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	0	609	0	0	0	1156	1097	0	17	823	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1		1				1	2		1	2	1
Detector Template	Left		Right				Left	Thru		Left	Thru	Right
Leading Detector (ft)	20		20				20	100		20	100	20
Trailing Detector (ft)	0		0				0	0		0	0	0
Detector 1 Position(ft)	0		0				0	0		0	0	0
Detector 1 Size(ft)	20		20				20	6		20	6	20
Detector 1 Type	Cl+Ex		Cl+Ex				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot		pm+ov				Prot	NA		Prot	NA	Perm
Protected Phases	4		5				5	2		1	6	
Permitted Phases			4									6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4		5				5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0		5.0				5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		9.5				9.5	22.5		9.5	22.5	22.5
Total Split (s)	22.5		38.0				38.0	58.0		9.5	29.5	29.5
Total Split (%)	25.0%		42.2%				42.2%	64.4%		10.6%	32.8%	32.8%
Maximum Green (s)	18.0		33.5				33.5	53.5		5.0	25.0	25.0
Yellow Time (s)	3.5		3.5				3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0				1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5				4.5	4.5		4.5	4.5	4.5
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0		3.0	3.0	3.0
Recall Mode	None		None				None	Max		None	Max	Max
Walk Time (s)	7.0							7.0			7.0	7.0
Flash Dont Walk (s)	11.0							11.0			11.0	11.0
Pedestrian Calls (#/hr)	0							0			0	0
Act Effct Green (s)	7.5		40.4				31.0	60.7		5.1	25.7	25.7
Actuated g/C Ratio	0.10		0.54				0.41	0.81		0.07	0.34	0.34
v/c Ratio	0.27		0.40				0.82	0.38		0.14	0.68	0.13
Control Delay	35.4		10.0				25.9	3.9		38.8	26.5	1.9
Queue Delay	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Delay	35.4		10.0				25.9	3.9		38.8	26.5	1.9
LOS	D		B				C	A		D	C	A
Approach Delay		13.3						15.2			24.6	
Approach LOS		B						B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 67.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: SR-76 (NS) & South Mission Rd (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	0	585	0	0	0	1110	1053	0	16	790	77
Future Volume (veh/h)	88	0	585	0	0	0	1110	1053	0	16	790	77
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	92	0	609				1156	1097	0	17	823	80
Adj No. of Lanes	2	0	2				2	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	2				2	2	0	2	2	2
Cap, veh/h	586	0	1504				1272	2297	0	35	1057	473
Arrive On Green	0.17	0.00	0.17				0.37	0.65	0.00	0.02	0.30	0.30
Sat Flow, veh/h	3442	0	2787				3442	3632	0	1774	3539	1583
Grp Volume(v), veh/h	92	0	609				1156	1097	0	17	823	80
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1721	1770	0	1774	1770	1583
Q Serve(g_s), s	1.9	0.0	10.8				26.7	13.2	0.0	0.8	17.8	3.1
Cycle Q Clear(g_c), s	1.9	0.0	10.8				26.7	13.2	0.0	0.8	17.8	3.1
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	586	0	1504				1272	2297	0	35	1057	473
V/C Ratio(X)	0.16	0.00	0.40				0.91	0.48	0.00	0.49	0.78	0.17
Avail Cap(c_a), veh/h	740	0	1629				1378	2297	0	106	1057	473
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	0.0	11.3				25.0	7.5	0.0	40.6	26.8	21.7
Incr Delay (d2), s/veh	0.1	0.0	0.2				8.7	0.7	0.0	10.4	5.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	10.3				14.1	6.6	0.0	0.5	9.5	1.5
LnGrp Delay(d),s/veh	29.7	0.0	11.5				33.7	8.2	0.0	51.0	32.5	22.4
LnGrp LOS	C		B				C	A		D	C	C
Approach Vol, veh/h		701						2253			920	
Approach Delay, s/veh		13.9						21.3			31.9	
Approach LOS		B						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	6.1	58.8		18.7	35.4	29.5		
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s	5.0	53.5		18.0	33.5	25.0		
Max Q Clear Time (g_c+I1), s	2.8	15.2		12.8	28.7	19.8		
Green Ext Time (p_c), s	0.0	21.0		1.5	2.2	4.5		

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	361	60	0	414	97	0
Future Volume (vph)	361	60	0	414	97	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981					
Flt Protected					0.950	
Satd. Flow (prot)	1827	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1827	0	0	1863	1770	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	1346			174	267	
Travel Time (s)	18.4			2.4	6.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	380	63	0	436	102	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	443	0	0	436	102	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	361	60	0	414	97	0
Future Vol, veh/h	361	60	0	414	97	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	380	63	0	436	102	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	443	0	848	412
Stage 1	-	-	-	-	412	-
Stage 2	-	-	-	-	436	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1117	-	332	640
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	652	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1117	-	332	640
Mov Cap-2 Maneuver	-	-	-	-	332	-
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	652	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	332	-	-	1117	-
HCM Lane V/C Ratio	0.308	-	-	-	-
HCM Control Delay (s)	20.6	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.3	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	361	0	43	414	0	48
Future Volume (vph)	361	0	43	414	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.995		
Satd. Flow (prot)	1863	0	0	1853	1611	0
Flt Permitted				0.995		
Satd. Flow (perm)	1863	0	0	1853	1611	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	174			723	234	
Travel Time (s)	2.4			9.9	5.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	380	0	45	436	0	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	380	0	0	481	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.5%		ICU Level of Service B	
Analysis Period (min) 15			

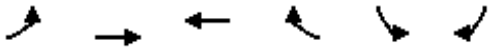
Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	361	0	43	414	0	48
Future Vol, veh/h	361	0	43	414	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	380	0	45	436	0	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	380	0	906	380
Stage 1	-	-	-	-	380	-
Stage 2	-	-	-	-	526	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1178	-	307	667
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	593	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1178	-	292	667
Mov Cap-2 Maneuver	-	-	-	-	292	-
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	563	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	667	-	-	1178	-
HCM Lane V/C Ratio	0.076	-	-	0.038	-
HCM Control Delay (s)	10.8	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	93	316	374	7	8	83
Future Volume (vph)	93	316	374	7	8	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	68
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected		0.989			0.950	
Satd. Flow (prot)	0	1842	1863	1583	1770	1583
Flt Permitted		0.989			0.950	
Satd. Flow (perm)	0	1842	1863	1583	1770	1583
Link Speed (mph)		50	50		45	
Link Distance (ft)		951	613		780	
Travel Time (s)		13.0	8.4		11.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	100	340	402	8	9	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	440	402	8	9	89
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

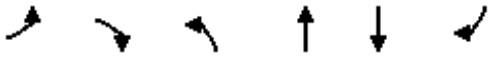
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	93	316	374	7	8	83
Future Vol, veh/h	93	316	374	7	8	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	0	68
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	340	402	8	9	89

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	402	0	-	0	942	402
Stage 1	-	-	-	-	402	-
Stage 2	-	-	-	-	540	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1157	-	-	-	292	648
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	584	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1157	-	-	-	261	648
Mov Cap-2 Maneuver	-	-	-	-	261	-
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	522	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1157	-	-	-	261	648
HCM Lane V/C Ratio	0.086	-	-	-	0.033	0.138
HCM Control Delay (s)	8.4	0	-	-	19.3	11.4
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1	0.5



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	8	5	1210	855	49
Future Volume (vph)	12	8	5	1210	855	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	550			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.993	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1850	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1850	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1025			6793	3274	
Travel Time (s)	23.3			154.4	74.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	13	9	5	1301	919	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	9	5	1301	972	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	8	5	1210	855	49
Future Vol, veh/h	12	8	5	1210	855	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	550	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	9	5	1301	919	53

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2258	946	972	0	-	0
Stage 1	946	-	-	-	-	-
Stage 2	1312	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	45	317	709	-	-	-
Stage 1	377	-	-	-	-	-
Stage 2	252	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	45	317	709	-	-	-
Mov Cap-2 Maneuver	45	-	-	-	-	-
Stage 1	377	-	-	-	-	-
Stage 2	250	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	75.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	709	-	45	317	-	-
HCM Lane V/C Ratio	0.008	-	0.287	0.027	-	-
HCM Control Delay (s)	10.1	-	114.5	16.7	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0	-	1	0.1	-	-

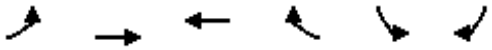
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	6	16	233	97	20
Future Vol, veh/h	13	6	16	233	97	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	6	17	251	104	22

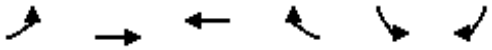
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	400	115	126	0	-	0
Stage 1	115	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	606	937	1460	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	599	937	1460	-	-	-
Mov Cap-2 Maneuver	695	-	-	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	754	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1460	-	695	937	-	-
HCM Lane V/C Ratio	0.012	-	0.02	0.007	-	-
HCM Control Delay (s)	7.5	-	10.3	8.9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0	-	-



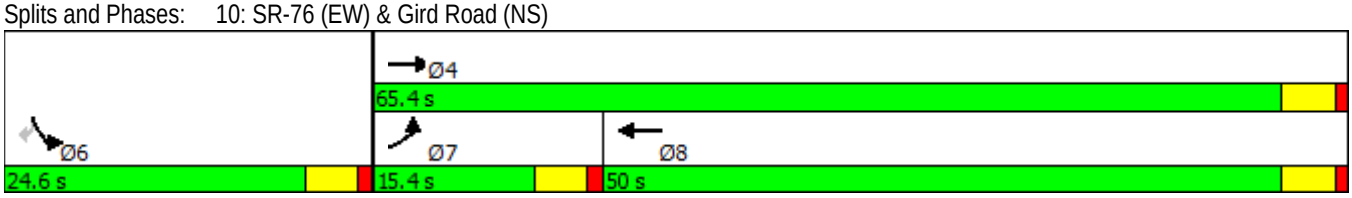
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	180	1013	852	54	20	83
Future Volume (vph)	180	1013	852	54	20	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	490			0	0	228
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.992			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1848	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1848	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5			84
Link Speed (mph)		30	30		50	
Link Distance (ft)		3274	12216		4215	
Travel Time (s)		74.4	277.6		57.5	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	182	1023	861	55	20	84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	182	1023	916	0	20	84
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6

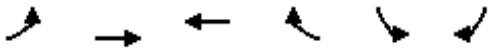


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	22.5	22.5		22.5	22.5
Total Split (s)	15.4	65.4	50.0		24.6	24.6
Total Split (%)	17.1%	72.7%	55.6%		27.3%	27.3%
Maximum Green (s)	10.9	60.9	45.5		20.1	20.1
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	Max	Max		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	10.8	64.7	48.5		6.7	6.7
Actuated g/C Ratio	0.14	0.83	0.62		0.09	0.09
v/c Ratio	0.74	0.66	0.79		0.13	0.39
Control Delay	52.2	6.1	18.9		34.0	14.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	52.2	6.1	18.9		34.0	14.1
LOS	D	A	B		C	B
Approach Delay		13.0	18.9		17.9	
Approach LOS		B	B		B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 77.6			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 73.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 10: SR-76 (EW) & Gird Road (NS)





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	180	1013	852	54	20	83
Future Volume (veh/h)	180	1013	852	54	20	83
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	182	1023	861	55	20	84
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	221	1506	1081	69	128	114
Arrive On Green	0.12	0.81	0.62	0.62	0.07	0.07
Sat Flow, veh/h	1774	1863	1733	111	1774	1583
Grp Volume(v), veh/h	182	1023	0	916	20	84
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1843	1774	1583
Q Serve(g_s), s	7.5	17.6	0.0	28.0	0.8	3.9
Cycle Q Clear(g_c), s	7.5	17.6	0.0	28.0	0.8	3.9
Prop In Lane	1.00			0.06	1.00	1.00
Lane Grp Cap(c), veh/h	221	1506	0	1150	128	114
V/C Ratio(X)	0.82	0.68	0.00	0.80	0.16	0.74
Avail Cap(c_a), veh/h	257	1506	0	1150	473	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	3.1	0.0	10.6	32.8	34.3
Incr Delay (d2), s/veh	16.9	2.5	0.0	5.8	0.6	8.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	9.6	0.0	15.8	0.4	3.7
LnGrp Delay(d),s/veh	49.1	5.5	0.0	16.3	33.4	43.2
LnGrp LOS	D	A		B	C	D
Approach Vol, veh/h		1205	916		104	
Approach Delay, s/veh		12.1	16.3		41.3	
Approach LOS		B	B		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				65.4		9.9	13.9	51.5
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				60.9		20.1	10.9	45.5
Max Q Clear Time (g_c+I1), s				19.6		5.9	9.5	30.0
Green Ext Time (p_c), s				24.7		0.2	0.1	12.2

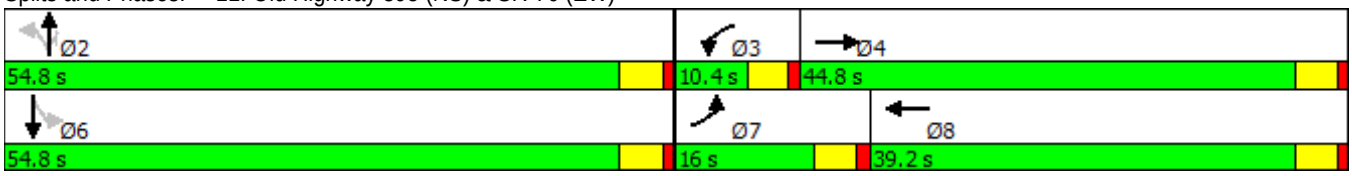
Intersection Summary	
HCM 2010 Ctrl Delay	15.2
HCM 2010 LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	813	65	48	734	374	85	209	76	140	86	63
Future Volume (vph)	161	813	65	48	734	374	85	209	76	140	86	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	503		0	275		0	0		194	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.989			0.949			0.996	0.850		0.970	
Flt Protected	0.950			0.950				0.986			0.976	
Satd. Flow (prot)	1770	3500	0	1770	3359	0	0	1738	1504	0	1763	0
Flt Permitted	0.950			0.950				0.814			0.463	
Satd. Flow (perm)	1770	3500	0	1770	3359	0	0	1435	1504	0	837	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			86			2	104		17	
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		12216			518			1079			789	
Travel Time (s)		151.4			6.4			24.5			17.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	168	847	68	50	765	390	89	218	79	146	90	66
Shared Lane Traffic (%)									10%			
Lane Group Flow (vph)	168	915	0	50	1155	0	0	315	71	0	302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		53.5	53.5	53.5	42.5	42.5	
Total Split (s)	16.0	44.8		10.4	39.2		54.8	54.8	54.8	54.8	54.8	
Total Split (%)	14.5%	40.7%		9.5%	35.6%		49.8%	49.8%	49.8%	49.8%	49.8%	
Maximum Green (s)	11.5	40.3		5.9	34.7		50.3	50.3	50.3	50.3	50.3	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5	4.5		4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		None	Max		None	None	None	None	None	
Walk Time (s)		7.0					7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0					42.0	42.0	42.0	31.0	31.0	
Pedestrian Calls (#/hr)		0					0	0	0	0	0	
Act Effct Green (s)	11.5	45.4		5.9	35.2			29.3	29.3		29.3	
Actuated g/C Ratio	0.13	0.51		0.07	0.39			0.33	0.33		0.33	
v/c Ratio	0.74	0.52		0.43	0.84			0.67	0.13		1.06	
Control Delay	60.9	19.3		56.2	31.8			32.5	2.0		98.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	60.9	19.3		56.2	31.8			32.5	2.0		98.8	
LOS	E	B		E	C			C	A		F	
Approach Delay		25.7			32.8			26.9			98.8	
Approach LOS		C			C			C			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 89.7			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 36.2		Intersection LOS: D	
Intersection Capacity Utilization 89.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 11: Old Highway 395 (NS) & SR-76 (EW)



HCM 2010 Signalized Intersection Summary
11: Old Highway 395 (NS) & SR-76 (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	813	65	48	734	374	85	209	76	140	86	63
Future Volume (veh/h)	161	813	65	48	734	374	85	209	76	140	86	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	168	847	68	50	765	390	89	218	79	146	90	66
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	1433	115	68	813	413	192	447	619	213	128	80
Arrive On Green	0.11	0.43	0.43	0.04	0.36	0.36	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1774	3319	266	1774	2273	1155	369	1144	1583	404	328	205
Grp Volume(v), veh/h	168	452	463	50	595	560	307	0	79	302	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1816	1774	1770	1659	1513	0	1583	936	0	0
Q Serve(g_s), s	9.0	18.9	18.9	2.7	31.6	31.8	0.0	0.0	3.1	17.7	0.0	0.0
Cycle Q Clear(g_c), s	9.0	18.9	18.9	2.7	31.6	31.8	14.3	0.0	3.1	32.0	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.70	0.29		1.00	0.48		0.22
Lane Grp Cap(c), veh/h	199	764	784	68	633	593	640	0	619	421	0	0
V/C Ratio(X)	0.84	0.59	0.59	0.74	0.94	0.94	0.48	0.00	0.13	0.72	0.00	0.00
Avail Cap(c_a), veh/h	210	764	784	108	633	593	845	0	820	591	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.2	21.0	21.0	46.2	30.2	30.3	22.0	0.0	18.9	31.6	0.0	0.0
Incr Delay (d2), s/veh	24.5	3.3	3.3	14.5	23.8	25.5	0.6	0.0	0.1	2.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	9.9	10.1	1.6	19.6	18.7	6.3	0.0	1.4	7.8	0.0	0.0
LnGrp Delay(d),s/veh	66.8	24.4	24.3	60.7	54.0	55.8	22.6	0.0	19.0	34.0	0.0	0.0
LnGrp LOS	E	C	C	E	D	E	C		B	C		
Approach Vol, veh/h		1083			1205			386			302	
Approach Delay, s/veh		30.9			55.1			21.9			34.0	
Approach LOS		C			E			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		42.5	8.2	46.4		42.5	15.4	39.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		50.3	5.9	40.3		50.3	11.5	34.7
Max Q Clear Time (g_c+I1), s		16.3	4.7	20.9		34.0	11.0	33.8
Green Ext Time (p_c), s		4.9	0.0	11.9		4.0	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	39.9
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX D

Attendance Boundary Map

Bonsall Unified School District

Legend

- Bonsall Schools
- Schools
- Freeways
- Highways
- Major Roads
- Roads
- Rivers
- Bonsall Unified School District
- Indian Reservation

VIVIAN BANKS CHARTER SCHOOL

Vivian Banks Charter

NEW GIRD ROAD HIGH SCHOOL SITE

NORMAN SULLIVAN MIDDLE SCHOOL

Norman L. Sullivan Middle

BONSALL ELEMENTARY SCHOOL

Bonsall Elementary

BONSALL WEST ELEMENTARY SCHOOL

Bonsall Elementary

0 1,050 2,100 4,200 Feet

1 inch = 2,000 feet

SanGIS
We Have San Diego Covered!

Map made exclusively for our client by the

San Diego Geographic Information Source
5010 Overland Ave., Suite 230
San Diego, CA 92123
(858) 874-7000
www.sangis.org

For reprints, mapping or additional information please contact SanGIS.

THIS MAP/DATA IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Note: This product may contain information from the SANDAG Regional Information System which cannot be reproduced without the permission of SANDAG. This product may contain information reproduced with permission granted by RAND MCNALLY & COMPANY® to SanGIS. This map is copyrighted by RAND MCNALLY & COMPANY®. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without the prior, written permission of RAND MCNALLY & COMPANY®.

Copyright SanGIS 2009 - All Rights Reserved.
Full text of this legal notice can be found at: http://www.sangis.org/Legal_Notice.htm

Plot Date: 07/11/14

APPENDIX E

Other Development Information

Report Timeframe: 6/23/2011 - 6/23/2016
Run Date & Time: 6/23/2016 5:10 PM

County of San Diego, Planning & Development Services
NEWLY CREATED BUILDING RECORDS
BUILDING DIVISION

ID	RECORD ID	OPENED DATE	RECORD STATUS	PRIMARY SCOPE CODE	USE	STREET ADDRESS	ZIP CODE	FLOOR AREA	OWNER NAME
1	PDS2011-1015-20110131	07/01/11	Completed	1018 - RES - Tract Models/Master Plan	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195-1 & 2) 2. PLAN TYPE #2 & 3 FROM MAP 15170 (SHADY GROVE) TO BE USED FOR MODELS AT THE "OAKMONT SUBIDIVISON" SEE 1015-20110102 FOR ALL CLEARANCES CODE UPDATE FOR ALL PHASES SUBMITTED AFTER 1-1-2008 . (Parking lot, path of travel for sales office/models home and port-a-potty are located on parcel 105-451-31-00 to be removed when model homes are no longer being used) PLAN #4HR LOT 79 3500 SQ FT SFD W/AC, FS 645 SQ FT FIN GARAGE	2018 JAMES GAYNOR ST	92028	4117	KB HOMES
2	PDS2011-1015-20110132	07/07/11	Completed	1019 - RES - Tract - Subsequent Phases	Cross Street: Tom McGuiness Jr Cr Description of Work: Master Plan for Map 15753 (TM 5195-2) Phase 11, 5 production units, Lots 67, 85-86, 92-93 for Oakmont at Shady Grove. See 1015-20110087 for all clearances. 2-1-2011 - Code update submitted for phase 9 on vam. Plan 2H Lot #92 1972 sq ft sfd w/ac, fs (elev H), 519 sq ft att fs garage (attached) 14 sq ft porch (elev H),	2085 JAMES GAYNOR ST	92028	2554	KB HOMES
3	PDS2011-1015-20110133	07/07/11	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Jr. Cir Description of Work: Master Plan for Map 15753 (TM 5195-2) Phase 11, 5 production units, Lots 67, 85-86, 92-93 for Oakmont at Shady Grove. See 1015-20110087 for all clearances. 2-1-2011 - Code update submitted for phase 9 on vam. Plan 3AR LOT #93 2246 sq ft SFD w/ac, fs 534 sq ft fin fs garage (attached) 122 sq ft porch (elev A)	2073 JAMES GAYNOR ST	92028	2902	KB HOMES

4	PDS2011-1015-20110134	07/07/11	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Jr. Cir Description of Work: Master Plan for Map 15753 (TM 5195-2) Phase 11, 5 production units, Lots 67, 85-86, 92-93 for Oakmont at Shady Grove. See 1015-20110087 for all clearances. 2-1-2011 - Code update submitted for phase 9 on vam. Plan 3 H LOT #67 2246 sq ft SFD w/ac, fs 534 sq ft fin fs garage (attached) 145 sq ft porch (elev h),	260 TOM MCGUINNESS JR CRK	92028	2925	KB HOMES
5	PDS2011-1015-20110135	07/07/11	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Jr. Cir Description of Work: Master Plan for Map 15753 (TM 5195-2) Phase 11, 5 production units, Lots 67, 85-86, 92-93 for Oakmont at Shady Grove. See 1015-20110087 for all clearances. 2-1-2011 - Code update submitted for phase 9 on vam. Plan 3KR LOT #86 2246 sq ft SFD w/ac, fs 534 sq ft fin fs garage (attached) 45 sq ft porch (Elev K)	2060 JAMES GAYNOR ST	92028	2825	KB HOMES
6	PDS2011-1006-20110169	07/13/11	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: VIA RANCHITOS Foundation: SLAB Description of Work: "AS-BUILT" 1200 SQFT AG BUILDING W/ ELECTRICAL & 160 SQFT SEA CARGO STORAGE (HRA). FOR EXISTING SFD	40609 GAVILAN MTN RD	92028	1360	FATHI, NASSER & ZAHRA
7	PDS2011-1015-20110136	07/25/11	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: Master Tract for Oakmont at Shady Grove 4productions units, lots Lots 66, 84, 87 & 102 (using (rMASTER PLAN FOR MAP 15170 (TM5195-1 & 2) FOR "SHADY GROVE SUBIDIVISON) THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 "TRACT PHASE PARENT - MASTER PLAN" PLAN #2G LOT 102 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE 252 sq ft porch/patio	263 TOM MCGUINNESS JR CRK	92028	4195	KB HOMES
8	PDS2011-1001-20110366	08/10/11	PC Expired	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: I-15 Foundation: SLAB Description of Work: ***2007 FIRESTORM STREAMLINE**** 1920 SQFT AG BARN w/ELECT (SUBPANEL) (PER DAMAGE ASSEMENT 720 SQFT AG BLDG) 1-9-2013 packet purged past 18 months vam	236 S OLD HIGHWAY 395	92028	1920	FRULLA INC

9	PDS2011-1006-20110211	09/14/11	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: SLEEPING INDIAN Foundation: SLAB Description of Work: 1261 TOTAL SF AG BLDG (DET TACK ROOM 144 SF, AND STABLE) FOR EXISTING SFD	817 TUMBLEWEED LN	92028	1261	HALL FAMILY TRUST
10	PDS2011-1006-20110217	09/22/11	Issued Invalid Expired	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Green Hills Dr Foundation: SLAB (barn only) Carport and shed on dirt Description of Work: FICO--288 SQFT Storage Shed and 450 SQFT Ag Bldg w/ misc electric...600 SQFT RV Carport to be remove prior to final per property owner, Mr. STACCO (M1A, 6/23/11).	2163 GREEN HILLS PL	92028	738	STACCO MICHAEL J&DOLORES M
11	PDS2011-1015-20110145	09/27/11	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Jr Cr Description of Work: Master Tract for Oakmont at Shady Grove 4productions units, lots Lots 66, 84, 87 & 102 (using (rMASTER PLAN FOR MAP 15170 (TM5195-1 & 2) FOR "SHADY GROVE SUBIDIVISON) THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 "TRACT PHASE PARENT - MASTER PLAN" PLAN #1GR Lot #87 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE	2066 JAMES GAYNOR ST	92028	3255	KB HOMES
12	PDS2011-1015-20110146	09/27/11	PC Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Jr Cr Description of Work: MASTER PLAN FOR MAP 15170 & 15753 (TM5195-1 & 2) 7 production units Lots 80, 87-91, 94 Phase 14 - Oakmont at Shady Grove (using Using Shady grove master plans) e see 1015-20110146 FOR ALL CLEARANCES PLAN #1h Lot #81 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE	2042 JAMES GAYNOR ST	92028	3255	KB HOMES

13	PDS2011-1015-20110147	10/12/11	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: Master Tract for Oakmont at Shady Grove 4productions units, lots Lots 66, 84, 87 & 102 (using (rMASTER PLAN FOR MAP 15170 (TM5195-1 & 2) FOR "SHADY GROVE SUBIDIVISON) THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 "TRACT PHASE PARENT - MASTER PLAN" PLAN #4AR LOT #66 3500 SQ FT SFD W/AC, FS 645 SQ FT FIN GARAGE OPTION Y: ELEV. A & D ONLY +268 SQFT LOGGIA & ELEV. H ONLY +262 SQFT LOGGIA	272 TOM MCGUINNESS JR CRK	92028	4413	KB HOMES
14	PDS2011-1015-20110148	10/12/11	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: Master Tract for Oakmont at Shady Grove 4productions units, lots Lots 66, 84, 87 & 102 (using (rMASTER PLAN FOR MAP 15170 (TM5195-1 & 2) FOR "SHADY GROVE SUBIDIVISON) THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 "TRACT PHASE PARENT - MASTER PLAN" PLAN #4D Lot #84 3500 SQ FT SFD W/AC, FS 645 SQ FT FIN GARAGE OPTION Y: ELEV. A & D ONLY +268 SQFT LOGGIA & ELEV. H ONLY +262 SQFT LOGGIA	2048 JAMES GAYNOR ST	92028	4413	KB HOMES
15	PDS2011-1017-20110197	10/19/11	Completed	3240 - COM - Office, Bank (Doctor, Attny, Dentist)	Cross street: Foundation: SLAB Description of Work: 4199 sq ft 2 story office buildings w/ac,fs. - 1st floor 1993 sq ft medical offices for Dr. Peter & Jenni Strutz consists of 4 exam rooms, dr's office, break room, receptionist/file room, waiting room, restroom, storage room, stairs to 2nd floor, lobby and elevator shaft(elevator to be installed on a seperate) 600 amp service, Temp Power. 2nd floor of 2206 sq ft to is shell (offices) unfinished lease space A & B with a restroom for the 2nd floor. 8.21.2013: structural only plan change (staircase) see cond of approval..LHG 04/15/13 Plan Change add temp power...VMD 1/8/13: PLAN CHECK EXTENTION @ 25% & GOOD TO 4/13/13....M1A (DEMO SFD UNDER PERMIT 1005-20040355)	605 E ALVARADO ST	92028	4199	STRUTZ PETER&JENNIFER

16	PDS2011-1006-20110244	10/27/11	PC Expired	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Tecalote Foundation: SLAB Description of Work: 1280 SQFT METAL AG BUILDING (NO ELECT OR PLUMB) WITH FORM 2A	1729 PUERTO DEL MUNDO	92028	1280	NEVILLS NEIL D&PAMELA A
17	PDS2011-1019-20110257	11/15/11	Completed	3230 - COM - Hospitals, Resthome, Convalescent	Cross street: Elder Foundation: SLAB Description of Work: 14331 sq ft assisted living facility with 4504 sq ft basement used for storage and laundry room. 169 sq ft office located in basement all with fs, ac, 150 sq ft retaining wall for a walkway at south end of building Phase 3 for Silvergate Retirement Residences 2/28/12: PLAN CHANGE...STRUCTURAL ONLY...M1A	420 ELBROOK DR	92028	19154	AMERICARE HEALTH&RETIREMENT L L
18	PDS2011-1006-20110279	12/20/11	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: RAINBOW HEIGTS Foundation: SLAB Description of Work: FICO--- CONVERT BARN BACK TO ORIGINAL USE (REMOVE 191 LF OF INTERIOR PARTITIONS) AND AS-BUILT 408 SQFT ADDITION TO BARN (ORIGINAL BARN 1000 SQFT PERMITTED UNDER C-87010541, TOTAL NOW 1408 SQFT) NOTE: TO REMOVE ILLEGAL CARPORT AND COOLER BUILDING	6754 RAINBOW HEIGHTS RD	92028	408	EDMONDS VERNON W
19	PDS2012-1019-20120002	01/18/12	Issued Invalid Expired	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: Santa Margarita Foundation: RAISED Description of Work: 5016 sq ft Agricultural Cold Storage buildingw/ac for avocado storage for McDaniel Fruit Co. Misc electrical (400 AMPS) and mechanical .	921 E MISSION RD	92028	5016	MCDANIEL BROTHERS L L C
20	PDS2012-1001-20120041	01/31/12	PC Expired	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: ASPEN DR Foundation: SLAB Description of Work: 1200 SQFT DETACHED METAL AG STORAGE BUILDING. **********9.26.2013: ok per cag to charge restart as OTC fees..LHG (please delete this note at creation of new permit/pc to replace this per CAG).**********	2713 RAINBOW GLEN RD	92028	1200	MONZON L L C
21	PDS2012-1006-20120038	02/24/12	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: VERN Foundation: SLAB Description of Work: 1000 SQFT DETACHED BARN FOR EXISTING SFD	4121 CALLE CANONERO	92028	1000	CLEMENS RICHARD A&MARLA D

22	PDS2012-1001-20120094	03/05/12	Completed	1120 - RES - M.H. Farm Employee Housing	Cross street: OLIVE HILL RD. Description of Work: ***FICO**** 745 SQ. FT. FARM EMPLOYEE MH., PIERS, REPLACEMENT OF AN EXISTING FEH BEING MOVED TO PARCEL 64, 200 AMP ELEC *****address is 353 'A' Puerta de Lomas This replaces 1001-20100195 which expired 18 months. vam. .	353 PUERTA DE LOMAS	92028		BECKER FRANK R&NICOLE R TRUST 0
23	PDS2012-1001-20120109	03/13/12	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: VIA ENCINOS Foundation: SLAB STEPPED RAISED (remove all that do not apply) Description of Work:**FICO**576 SQFT DETACHED BARN W/ 288 SQFT OVERHANG.	1368 EL NIDO DR	92028	864	VADNAIS, PAMELA C
24	PDS2012-1015-20120022	03/14/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: Master Tract for Oakmont at Shady Grove PHASE 1 Productions units,Lots 107 (using (rMASTER PLAN FOR MAP 15170(TM5195-1 & 2) FOR "SHADY GROVE SUBIDIVISON) THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 "TRACT PHASE PARENT - MASTER PLAN" PLAN #4A LOT #107 3500 SQ FT SFD W/AC, FS 645 SQ FT FIN GARAGE	203 TOM MCGUINNESS JR CRK	92028	4145	KB HOMES
25	PDS2012-1001-20120115	03/15/12	PC Expired	1120 - RES - M.H. Farm Employee Housing	Cross street: Tenaja Truck Trl Description of Work:**FICO** 2 MOBILE HOMES FOR FARM EMPLOYEE HOUSING ON PIERS. UNIT 'A' IS 1440 SQFT AND UNIT 'B' IS 775 SQFT. **USING 40631 DE LUZ RD 12/27/13: packet purged...vmt 3/6/13: Plan Change extention @ 25% of current fees & good to 9/11/13...M1A NOTE: EXISTING UNPERMITTED CARPORT TO BE DEMOLISHED.	40877 DE LUZ RD	92028		BARAJAS, DANIEL
26	PDS2012-1021-20120044	03/21/12	Completed	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: VIA CALVILLO Foundation: SLAB Description of Work: 629 SQFT AG BUILDING METAL BLDG (FORM 2A) FOR EXISTING AVOCADO AND LEMON GROVE (NO ELECT OR PLUMB) **1ST STRUCTURE ON PARCEL*** tHIS REPLACES 1006-20120021 WHICH WASN'T COMMERICAL VAM.	4398 VIA SERENA	92003	629	J D FARMS

27	PDS2012-1037-20120003	03/28/12	Completed	1120 - RES - M.H. Farm Employee Housing	Cross street: E MISSION Description of Work: 'AS-BUILT' 160 SF TRAILER TO BE 'FARM WORKER HOUSING FOR COMM. AG (AVOCADO & CITRUS GROVE	1109 N STAGE COACH LN	92028		BUYS HENRY+MAUREEN FAMILY TR
28	PDS2012-1001-20120137	03/29/12	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: PALA RD Foundation: SLAB Description of Work: 2000 SQFT WORKSHOP WITH 1/2 BATH AND MISC ELECT AND PLUMB (GRAPE PROCESSING) 05.03.2012: update scope from barn to workshop....LHG	11539 TEMEPA RD	92028	2000	VALENTA, MR & MRS
29	PDS2012-1015-20120042	05/01/12	Completed	1018 - RES - Tract Models/Master Plan	Cross street: GUMTREE Description of Work: Master Tract for Oakmont at Shady Grove Phase 14, 1 productions unit, Lots 95 (using (MASTER PLAN FOR MAP 15170 (TM5195-1 & 2) FOR "SHADY GROVE SUBIDIVISON) THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 "TRACT PHASE PARENT - MASTER PLAN" PLAN #4AR 3500 SQ FT SFD W/AC, FS 645 SQ FT FIN GARAGE	2037 JAMES GAYNOR ST	92028	4145	KB HOMES
30	PDS2012-1006-20120079	05/03/12	Issued Invalid Expired	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: PALA RD Foundation: SLAB Description of Work: 2000 SQFT WORKSHOP WHOLESALE LIMITED WINERY WITH 1/2 BATH AND MISC ELECT AND PLUMB 7-2-2012 Plan change to rename wholesale limited wirnery and add meter 600 amp vam see c o fo a	11539 TEMEPA RD	92028	2000	VALENTA, MR & MRS
31	PDS2012-1017-20120098	05/03/12	Completed	1050 - COM - Residential Apartment 4+ Units	Cross street: S. Mission Foundation: SLAB Description of Work: 2 story 8288 sq ft 8 unit apartment building w/fs and laundry facility 126 sq ft and trash enclosure 63 sq ft. Units 1-3-5-7 are 1044 sq ft each with 101 sq ft patio on each Units 2-4-6-8 are 1028 sq ft each with 101 sq ft patio on each Notice to Permittee: Temp power shall be inspected prior to framing inspection (Original SFD was demo'd under 1005-20050366)	335 W CLEMMENS LN	92028	9372	ANDERSON JOE D TRUST 04-29-02

32	PDS2012-1016-20120005	05/08/12	Completed	3220 - COM - Service Stations And Repair Garages	Cross Street: Catalpa Foundation: Slab Description of Work 2 new buildings w/ac, fs for Salem Car Wash & Retail as follows: Car Wash - 5100 sq ft bldg to include 2280 sq ft carwash (b), 1220 sq ft sales area (mini store) (m), 1600 sq ft detail area (open bays)(u) Retail 2160 sq ft retail building 'Dollar Tree' - (m) 400 amp meter Trash enclosure 312 sq ft (52X6') - and 4 light poles 03/05/14 Plan Change from oil lube to retail only see C of A...VMD 3-15-2013 Plan change adding 4 light poles and trash enclosure vam.	936 E MISSION RD	92028	5100	WILLIAM SALEM
33	PDS2012-1001-20120221	05/08/12	Completed	1120 - RES - M.H. Farm Employee Housing	Cross street: RECHE RD Description of Work: 'FIRESTORM 2007' 1706 SF FEH MH (PIERS) FOR EXISTING 'MADDOCK NURSERY' per previous permit see VB30809 previous SFD was 2476 sf and 830 sf garage 05/30/12 Plan Change previous permit found see C of A...VMD	1155 RANGER RD	92028		MADDOCK NURSERY
34	PDS2012-1037-20120004	05/30/12	Completed	1120 - RES - M.H. Farm Employee Housing	Cross street: RECHE RD Description of Work: 'FIRESTORM 2007' 1706 SF FEH MH (PIERS) FOR EXISTING 'MADDOCK NURSERY' per previous permit see VB30809 previous SFD was 2476 sf and 830 sf garage	1155 RANGER RD	92028		MADDOCK NURSERY
35	PDS2012-1015-20120080	07/03/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: Master Tract 15753 for Oakmont at Shady Grove- Phase 15, 2 productions units, lots Lots 51 & 105, See 1015-20120080 for all clearances (using MASTER PLAN FOR MAP 15170 (TM5195-1 & 2) FOR "SHADY GROVE SUBIDIVISON) THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 "TRACT PHASE PARENT - MASTER PLAN" PLAN #4AR Lot 51 3500 SQ FT SFD W/AC, FS 645 SQ FT FIN GARAGE OPTION X: +210 SQFT HAB./ -210 SQFT GAR. OPTION Y: ELEV. A & D ONLY +268 SQFT LOGGIA	1986 JAMES GAYNOR ST	92028	4413	KB HOMES

36	PDS2012-1015-20120081	07/03/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15170 (TM5195-1 & 2) Phase 16, 1 production unit Lot #65 on MAP 15753 FOR "SHADY GROVE SUBIDIVISON) SEE 1015-20120081 FOR ALL CLEARANCES (for original submittal). THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 PLAN #2GR Lot #65 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE ELEV 'G': +252 SQFT PORCH	284 TOM MCGUINNESS JR CRK	92028	4195	KB HOMES
37	PDS2012-1006-20120121	07/09/12	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: VIA ENCINOS Foundation: SLAB Description of Work:**FICO**576 SQFT DETACHED BARN W/ 288 SQFT OVERHANG.	1368 EL NIDO DR	92028	864	VADNAIS, PAMELA C
38	PDS2012-1006-20120122	07/09/12	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: DE LUZ Foundation: SLAB Description of Work: 3557 SF DET AG BLDG (FORM 2) FOR EXISTING SFD 11-19-2013 Permit renewed at 25% of current fees. Must have valid inspection with 180 calendar days	40689 DE LUZ MURRIETA RD	92028	3557	DORFFI FAMILY TRUST
39	PDS2012-1015-20120082	07/10/12	Issued Expired	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: Master Tract for Oakmont at Shady Grove- Phase 15, 2 productions units, lots Lots 51 & 105, See 1015-20120080 for all clearances (using MASTER PLAN FOR MAP 15170 (TM5195-1 & 2) FOR "SHADY GROVE SUBIDIVISON) THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 "TRACT PHASE PARENT - MASTER PLAN" PLAN #4HR LOT #105 3500 SQ FT SFD W/AC, FS 645 SQ FT FIN GARAGE	227 TOM MCGUINNESS JR CRK	92028	4145	KB HOMES

40	PDS2012-1017-20120152	07/20/12	Completed	3250 - COM - Public Works Bldgs (Utilities, Water)	Cross street: Mission Rd Foundation: SLAB Description of Work: North County FPD (Bonsall) 5225 sq ft fire station w/ac, fs as follows: 3435 sq ft fire station and 1790 sq ft sleeping quarters with attached 3611 sq ft apparatus bay w/fs. 100 sq ft detached storage building w/electrical. . Concrete hose drying rack(cncrete on the ground)) Trash enclosure 198 sq ft cmu enclosure with 294 sq ft metal canopy. Fuel stoage tank (500 gal) enclosure 186 sq ft cmu wall with 217 sq ft metal canopy. Transformer enclosure 246 sq ft cmu wall. Genearator(to be done by other) and propane tank ensloure 348 sq ft cmu wall. 40' flag pole, monument sign (externally illumniated from top) 466 lineal fft cmu periminter wall. Fire station and apparatus garage 12-20-2013 TEMP POWER ADDED VAM 8-23-2013 plan check renewed see 1016-20120006 till 1-15-2014 vam at 25% of current fees	5906 OLIVE HILL RD	92003	7015	NORTH COUNTY FIRE PROTECTION DI
41	PDS2012-1017-20120153	07/20/12	Completed	3250 - COM - Public Works Bldgs (Utilities, Water)	Cross street: Mission Rd Foundation: SLAB Description of Work: 5225 sq ft fire station w/ac, fs as follows: 3435 sq ft fire station and 1790 sq ft sleeping quarters with attached 3611 sq ft apparatus bay w/fs. 100 sq ft detached storage building w/electrical. . Concrete hose drying rack(cncrete on the ground)) Trash enclosure 198 sq ft cmu enclosure with 294 sq ft metal canopy. Fuel stoage tank (500 gal) enclosure 186 sq ft cmu wall with 217 sq ft metal canopy. Transformer enclosure 246 sq ft cmu wall. Genearator(to be done by other) and propane tank ensloure 348 sq ft cmu wall. 40' flag pole, monument sign (externally illumniated from top) 466 lineal fft cmu periminter wall. 100 sq ft storage shed with electrical and concrete hose drying rack 4-6-16: PERMIT RENEWED AT 25% OF CURRENT FEES. MUST CALL FOR INSPECTION WITHIN 180 DAYS TO	5906 OLIVE HILL RD	92003	100	NORTH COUNTY FIRE PROTECTION DI

42	PDS2012-1017-20120155	07/20/12	Completed	3250 - COM - Public Works Bldgs (Utilities, Water)	Cross street: Mission Rd Foundation: SLAB Description of Work: Fire Station for North County FPD (Bonsall Station) 5225 sq ft fire station w/ac, fs as follows: 3435 sq ft fire station and 1790 sq ft sleeping quarters with attached 3611 sq ft apparatus bay w/fs. 100 sq ft detached storage building w/electrical. . Concrete hose drying rack(cncrete on the ground)) Trash enclosure 198 sq ft cmu enclosure with 294 sq ft metal canopy. Fuel stoage tank (500 gal) enclosure 186 sq ft cmu wall with 217 sq ft metal canopy. Transformer enclosure 246 sq ft cmu wall. Genearator(to be done by other) and propane tank ensloure 348 sq ft cmu wall. 40' flag pole, monument sign (externally illumniated from top) 466 lineal fft cmu periminter wall. (466x4) Perimenter wall, Trash enclosure, fuel tank enclosure, propane tank enclosure, transformer enclosure 4-6-16: PERMIT	5906 OLIVE HILL RD	92003	3842	NORTH COUNTY FIRE PROTECTION DI
43	PDS2012-1016-20120006	07/20/12	Completed	3250 - COM - Public Works Bldgs (Utilities, Water)	Cross street: Mission Rd Foundation: SLAB Description of Work: North County FPD (Bonsall) 5225 sq ft fire station w/ac, fs as follows: 3435 sq ft fire station and 1790 sq ft sleeping quarters with attached 3611 sq ft apparatus bay w/fs. 100 sq ft detached storage building w/electrical. . Concrete hose drying rack(cncrete on the ground)) Trash enclosure 198 sq ft cmu enclosure with 294 sq ft metal canopy. Fuel stoage tank (500 gal) enclosure 186 sq ft cmu wall with 217 sq ft metal canopy. Transformer enclosure 246 sq ft cmu wall. Genearator(to be done by other) and propane tank ensloure 348 sq ft cmu wall. 40' flag pole, monument sign (externally illumniated from top) 466 lineal fft cmu periminter wall. 8-23-2013 Plan check renewed at 255 of current fees.till 1-15-2014 vam	5906 OLIVE HILL RD	92003		NORTH COUNTY FIRE PROTECTION DI

44	PDS2012-1015-20120102	08/09/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15170 (TM5195-1 & 2) Phase 15 lot 90 SUBIDIVISON) SEE 1015-20120102 FOR ALL CLEARANCES (for original submittal). THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 PLAN #2R Lot #90 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE ELEV 'D': +260 SQFT PORCH &	2084 JAMES GAYNOR ST	92028	4223	KB HOMES
45	PDS2012-1015-20120109	08/23/12	Completed	1018 - RES - Tract Models/Master Plan	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) 3 Plan types 2 built Lots 4 & 5 for Las Ventanas see 1012-20110001 for all clearances 8-13-2012 Plan change see conditions of approval vam 2-1-2012 Plan check renewed at 25% of current fees till 8-24-2012 vam Plan Type 1A Lot #4 2767 sq ft sfd w/ac, fs 632 sq ft att garage, fin fs 84 sq ft porch	2947 MESA GROVE RD	92028	3483	ZEPHYR PARTNERS FALLBROOK DEVEL
46	PDS2012-1015-20120110	08/23/12	Completed	1018 - RES - Tract Models/Master Plan	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) 3 Plan types 2 built Lots 4 & 5 for Las Ventanas see 1012-20110001 for all clearances Plan 3A Lot #5 3210 sq ft sfd w/ac, fs 613 sq ft att fin fs garage 49 sq ft entry way, 138 sq ft front porch	2935 MESA GROVE RD	92028	3907	ZEPHYR PARTNERS FALLBROOK DEVEL
47	PDS2012-1017-20120190	09/05/12	Completed	3270 - COM - Stores, Restaurants, Warehouses	Cross street: S Mission Foundation: SLAB Description of Work: 2 existing warehouses(2732 sf & 1889 sf) to be demolished and rebuilt for Del Rey Avocdo, Inc(Shamrock Partners) with misc epm (same sq footage) 1017-20120190 for all clearances 2-19-13 structural plan change bulding materials for trellis only..cag 1/8/13: PLAN CHANGE -- ADDING RACKING SYSTEM -- M1A Building A - 2732 sq ft cold storage warehouse Building B - 1889 sq ft cold storage and shipping warehouse	1260 S MAIN AVE	92028	4621	SHAMROCK PARTNERS

48	PDS2012-1017-20120240	10/15/12	Issued	3285 - ACC - Greenhouses	Cross street: Rainbow Valley Blvd Foundation: (concrete casons) Description of Work: 53460 sqft Greenhouse for Hines Growers (9 bays at 30 x198), 200 amp meter, misc electrical & plumbing. 9/18/2015: Permit Renewal @ 25% of current fees, must call for an inspection within 180 days to keep permit active & permit is good for 1 year...M1A 12/22/14: Plan change -- add electrical & plumbing; see c of a...vmt 12/22/14: Permit renewed @ % of today's fees; must have valid inspection with 180 days...vmt	2465 RAINBOW VALLEY BLVD	92028	53460	HINES GROWERS C/OFALLBROOK NURSERY L L C
49	PDS2012-1037-20120006	11/15/12	Completed	1120 - RES - M.H. Farm Employee Housing	Cross street: OLIVE HILL RD. Description of Work: ***FICO**** 745 SQ. FT. FARM EMPLOYEE MH., PIERS, F/S, REPLACEMENT OF AN EXISTING FEH BEING MOVED TO PARCEL 64, 200 AMP ELEC *****address is 353 'A' Puerta de Lomas	353 PUERTA DE LOMAS A	92028		BECKER FRANK R&NICOLE R TRUST 0
50	PDS2012-TPHSPC-000053	12/07/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Description of Work: Master Tract for Map 15753 (tom 5195.2) Phase 2 & 3, Lots 52, 106(p-2), 89,91,94(p-3) 5 production units See PDS2012-TPHSPC-000053 for all clearances	0 JAMES GAYNOR ST	92028		K B HOME COASTAL INC
51	PDS2012-RESACC-000221	12/10/12	PC Expired	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Dairy Rd Foundation: SLAB Description of Work: Asbuilt 1600 sqft detached Ag bldg (no elect and plumb) (has fico flag need to talk to ceo about stamps)	2306 ROSE RD	92028-9734	1600	MALIK MUHAMMAD I
52	PDS2012-COMACC-000219	12/13/12	Completed	3201 - COM - Agricultural Processing	Cross street: S. Mission Rd Foundation: SLAB Description of Work: 1987 sq ft cold storage building for Del Rey Avocado, Inc. (demo 4 existing bldgs totalling 1777 sq ft under seperate permit)	1260 S MAIN AVE	92028	1987	SHAMROCK PARTNERS
53	PDS2012-CMASPC-000057	12/14/12	Completed	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: Rainbow Creek Rd Foundation: SLAB Description of Work: 3 ag buildings 12480 sq ft each for Hines Nursery. 08/05/13 Plan Change footing detail see C of A...VMD	2570 RAINBOW VALLEY BLVD	92028	12480	HINES NURSERIERS

54	PDS2012-TPHSPC-000055	12/20/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase A , 5 production units ON LOTS 47, 82, 88, 98-99 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2012-TPHSPC-000055 FOR ALL CLEARANCES. PLAN #1 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE OPTION X: +226 SQFT HAB./ -226 SQFT GAR. OPTION Y: +185 SQFT HAB./ -185 SQFT GAR. OPTION Z: +209 SQFT LOGGIA PLAN #2 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE ELEV 'D': +260 SQFT PORCH & ELEV. 'G': +252 SQFT PORCH OPTION X: +249 SQFT HAB./ -249 SQFT GAR. OPTION Y: +187 SQFT LOGGIA PLAN #3 3492 SQ FT 2 STORY SFD W/AC, FS 625 SQ FT FIN GARAGE OPTION X: + 12 SQFT HAB.	0 JAMES GAYNOR ST	92028		KB HOMES
55	PDS2012-TPHSPM-000133	12/21/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Description of Work: Master Tract for Map 15753 (tom 5195.2) Phase 2 & 3, Lots 52, 106(p-2), 89,91,94(p-3) 5 production units See PDS2012-TPHSPC-000053 for all clearances PLAN #1H Lot #89 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE	2078 JAMES GAYNOR ST	92028	3255	K B HOME COASTAL INC
56	PDS2012-TPHSPM-000134	12/21/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Description of Work: Master Tract for Map 15753 (tom 5195.2) Phase 2 & 3, Lots 52, 106(p-2), 89,91,94(p-3) 5 production units See PDS2012-TPHSPC-000053 for all clearances PLAN #1AR Lot #91 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE	2090 JAMES GAYNOR ST	92028	3255	K B HOME COASTAL INC
57	PDS2012-TPHSPM-000135	12/21/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Description of Work: Master Tract for Map 15753 (tom 5195.2) Phase 2 & 3, Lots 52, 106(p-2), 89,91,94(p-3) 5 production units See PDS2012-TPHSPC-000053 for all clearances PLAN #2D Lot 52 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE	1994 JAMES GAYNOR ST	92028	3943	K B HOME COASTAL INC

58	PDS2012-TPHSPM-000136	12/21/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Description of Work: Master Tract for Map 15753 (tom 5195.2) Phase 2 & 3, Lots 52, 106(p-2), 89,91,94(p-3) 5 production units See PDS2012-TPHSPC-000053 for all clearances PLAN #2DR Lot #106 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE ELEV 'D': +260 SQFT PORCH & ELEV. 'G': +252 SQFT PORCH OPTION X: +249 SQFT HAB./ -249 SQFT GAR. OPTION Y: +187 SQFT LOGGIA	215 TOM MCGUINNESS JR. CIR	92028	3943	K B HOME COASTAL INC
59	PDS2012-TPHSPM-000137	12/21/12	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Tom McGuiness Description of Work: Master Tract for Map 15753 (tom 5195.2) Phase 2 & 3, Lots 52, 106(p-2), 89,91,94(p-3) 5 production units See PDS2012-TPHSPC-000053 for all clearances PLAN #3D Lot 94 3492 SQ FT 2 STORY SFD W/AC, FS 625 SQ FT FIN GARAGE OPTION X: + 12 SQFT HAB.	2067 JAMES GAYNOR ST	92028	4117	K B HOME COASTAL INC
60	PDS2013-COMACC-000001	01/02/13	Issued Expired	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: Rainbow Creek Rd Foundation: SLAB Description of Work: 3 Ag buildings 12480 sq ft each for Hines Nursery. GREENHOUSE, BLDG A -- 12,480 SQFT 08/05/13 Plan Change footing detail see C of A...VMD	2570 RAINBOW VALLEY BLVD	92028	12480	HINES NURSERIERS
61	PDS2013-COMACC-000002	01/02/13	Issued Expired	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: Rainbow Creek Rd Foundation: SLAB Description of Work: 3 ag buildings 12480 sq ft each for Hines Nursery. GREENHOUSE, BLDG B - 12,480 SQFT 08/05/13 Plan Change footing detail see C of A...VMD	2570 RAINBOW VALLEY BLVD	92028	12480	HINES NURSERIERS
62	PDS2013-COMACC-000003	01/02/13	Issued Expired	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: Rainbow Creek Rd Foundation: SLAB Description of Work: 3 ag buildings 12480 sq ft each for Hines Nursery. GREENHOUSE, BLDG C -- 12,480 SQFT 08/05/13 Plan Change footing detail see C of A...VMD	2570 RAINBOW VALLEY BLVD	92028	12480	HINES NURSERIERS

63	PDS2013-RESACC-000007	01/07/13	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Morro Hills Foundation: SLAB Description of Work: 1825 sq ft 2 story ag building with 1/2 bath first structure on lot. 2-05-2016 Ok to final this building per Clay Westling vam 2-4-2016 - PERMIT RENEWED AT 25% OF CURRENT FEES TILL 2-1-2017 MUST HAVE VALID INSPECTION WITH 180 CALENDAR DAYS 09.18.2013: plan change structural only...LHG	5078 SAN JACINTO CIRCLE EAST	92028	1825	SHANAHAN MARY F
64	PDS2013-RESGRD-000001	01/07/13	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Morro Hills Foundation: SLAB Description of Work: Grading for (pds2013-resacc-000007 - 1825 sq ft 2 story ag building with 1/2 bathas first structure on lot.	5078 SAN JACINTO CIRCLE EAST	92028		SHANAHAN MARY F
65	PDS2013-COMALT-000018	01/17/13	Completed	4370 - COM - Addn/Alt Hotel, Motel, Comml Bldgs	:Cross street: South BRANDON RD. Description of Work: FICO - 759 sq ft conversion of patio area(slab) in middle of building to 2 offices, storage areas lounge area and bathroom. Misc electrical plumbing and mechanical. for Fallbrook Medical Center This replaces plan check 1017-20110070 which expired 10-12-2011 vam 5-28-2015 Plan change to one wall see c of a vam. 4-07-2015 PERMIT RENEWED AT 25% OF CURRENT FEES. MUST HAVE VALID INSPECTION WITHIN 180 CALENDAR DAYS . VAM	581 E ELDER ST	92003		Melvin Ricks
66	PDS2013-TPHSPM-000025	02/07/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase A, 5 production units ON LOTS 47, 82, 88, 98, 99 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2012-TPHSPC-000055 FOR ALL CLEARANCES. PLAN #2AR Lot #47 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE	320 WILLIAM PITTENGER PL	92028-2628	3943	KB HOMES
67	PDS2013-TPHSPM-000026	02/07/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase A, 5 production units ON LOTS 47, 82, 88, 98, 99 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2012-TPHSPC-000055 FOR ALL CLEARANCES. PLAN #2A Lot #88 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE	2072 JAMES GAYNOR ST	92028	3943	KB HOMES

68	PDS2013-TPHSPM-000027	02/07/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase A, 5 production units ON LOTS 47, 82, 88, 98, 99 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2012-TPHSPC-000055 FOR ALL CLEARANCES. PLAN #2A Lot #99 3285 SQ FT SFD W/AC, FS 658 sq ft Fin Fs Garage	224 TOM MCGUINNESS JR. CIR	92028	3943	KB HOMES
69	PDS2013-TPHSPM-000028	02/07/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase A, 5 production units ON LOTS 47, 82, 88, 98, 99 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2012-TPHSPC-000055 FOR ALL CLEARANCES. PLAN #3 3500 SQ FT 2 STORY SFD W/AC, FS 625 SQ FT FIN GARAGE	2036 JAMES GAYNOR ST	92028	4145	KB HOMES
70	PDS2013-TPHSPM-000029	02/07/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase A, 5 production units ON LOTS 47, 82, 88, 98, 99 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2012-TPHSPC-000055 FOR ALL CLEARANCES. PLAN #4D Lot #98 3500 SQ FT 2 STORY SFD W/AC, FS 645 SQ FT FIN GARAGE Opt #2 - 268 sq ft loggia	212 TOM MCGUINNESS JR. CIR	92028	4413	KB HOMES
71	PDS2013-TPHSPC-000007	02/15/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase b , 5 production units ON LOTS 80-81, 83, 96-97 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2013-TPHSPC-000007 FOR ALL CLEARANCES. PLAN #1 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE OPTION X: +226 SQFT HAB./ -226 SQFT GAR. OPTION Y: +185 SQFT HAB./ -185 SQFT GAR. OPTION Z: +209 SQFT LOGGIA PLAN #2 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE ELEV 'D': +260 SQFT PORCH & ELEV. 'G': +252 SQFT PORCH OPTION X: +249 SQFT HAB./ -249 SQFT GAR. OPTION Y: +187 SQFT LOGGIA	2024 JAMES GAYNOR ST	92028		KB HOMES

72	PDS2013-COMPRI-000017	02/21/13	Completed	3270 - COM - Stores, Restaurants, Warehouses	Cross street: Mission Rd Foundation: SLAB Description of Work: 3573 sq ft new restaurant building for McDonalds. Misc epm. 160 sq ft trash enclosure with 160 sq ft raised roof, 2 new light poles. 5/6/14: PLAN CHANGE -- ADD LIGHT POLES & MISC CHANGES; SEE C OF A...VMT 2/25/14: ONE-TIME ONLY PLAN CHECK EXTENSION @ 25% OF TODAY'S FEES; NEW EXPIRATION DATE IS 8/20/14...vmt 3/12/13: PLAN CHECK TO BE EXPEDITED PER APPLICANT'S REQUEST; OKAYED BY C. WESTLING...M1A	143 AMMUNITION RD	92028	4240	BRIAN HARDY
73	PDS2013-RESACC-000121	03/07/13	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: MORRO HILLS RD Foundation: SLAB Description of Work: 2000 SQ .FT. DET AG STORAGE BLDG (use Forms #2 & #3) FOR EXISTING SFD	4875 SAN JACINTO CIR	92028-8747	2000	ROBINSON TIMOTHY J&LAURA P FAMILY TRUST 01-21-99
74	PDS2013-RESACC-000135	03/15/13	PC Invalid Expired	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Mission Foundation: SLAB Description of Work: FICO--- 2238 sqft Detached Asbuilt Ag Building with Mezanine (with bathroom), and 230 sqft Asbuilt Addition to Detached Barn (misc elect)	2727 N STAGE COACH LN	92028-8429	2610	DEULING DAVID&CATHY TRUST 10-06-10
75	PDS2013-COMACC-000055	03/19/13	Completed	3220 - COM - Service Stations And Repair Garages	Cross Street: Catalpa Foundation: Slab Description of Work 2 new buildings w/ac, fs for Salem Car Wash & Retail (Dollar Tree) as follows: Retail 2160 sq ft retail building - (m) 400 amp meter 03/05/14 Plan Change from oil lube to retail only see C of A...VMD	936 E MISSION RD C	92028-2218	2160	WILLIAM SALEM
76	PDS2013-COMPRI-000020	03/19/13	Completed	3220 - COM - Service Stations And Repair Garages	Cross Street: Catalpa Foundation: Slab Description of Work 2 new buildings w/ac, fs for Salem Car Wash & Oil- Lube as follows: Car Wash - 5100 sq ft bldg to include 2280 sq ft carwash (b), 1220 sq ft sales area (mini store) (m), 1600 sq ft detail area (open bays)(u)	936 E MISSION RD B	92028-2218	5100	WILLIAM SALEM
77	PDS2013-TPHSPM-000043	03/20/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase b , 5 production units ON LOTS 80-81, 83, 96-97 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2013-TPHSPC-000007 FOR ALL CLEARANCES. PLAN #1A Lot #80 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE	2024 JAMES GAYNOR ST	92028	3255	KB HOMES

78	PDS2013-TPHSPM-000044	03/20/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase b , 5 production units ON LOTS 80-81, 83, 96-97 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2013-TPHSPC-000007 FOR ALL CLEARANCES. PLAN #1H Lot #83 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE OPTION X: +226 SQFT HAB./ -226 SQFT GAR. OPTION Y: +185 SQFT HAB./ -185 SQFT GAR. OPTION Z: +209 SQFT LOGGIA	2042 JAMES GAYNOR ST	92028	3255	KB HOMES
79	PDS2013-TPHSPM-000045	03/20/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase b , 5 production units ON LOTS 80-81, 83, 96-97 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2013-TPHSPC-000007 FOR ALL CLEARANCES. PLAN #1HR LOT #96 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE	2031 JAMES GAYNOR ST	92028	3255	KB HOMES
80	PDS2013-TPHSPM-000046	03/20/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase b , 5 production units ON LOTS 80-81, 83, 96-97 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2013-TPHSPC-000007 FOR ALL CLEARANCES. PLAN #2G LOT #81 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE ELEV. 'G': +252 SQFT PORCH	2030 JAMES GAYNOR ST	92028	3943	KB HOMES
81	PDS2013-TPHSPM-000047	03/20/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: GUMTREE Description of Work: MASTER PLAN FOR MAP 15753 (TM5195- 2) FINAL Phase b , 5 production units ON LOTS 80-81, 83, 96-97 FOR "OAKMONT @ SHADY GROVE SUBIDIVISON) SEE PDS2013-TPHSPC-000007 FOR ALL CLEARANCES. PLAN #2D LOT #97 3285 SQ FT SFD W/AC, FS 658 SQ FT FIN GARAGE ELEV 'D': +260 SQFT PORCH	2025 JAMES GAYNOR ST	92028	3943	KB HOMES
82	PDS2013-RESACC-000196	04/15/13	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: CAMINO DEL REY Foundation: SLAB Description of Work:1586 SF METAL BARN WITH MISC ELE AND PLUMB. (FORMS 2 AND 3)	7117 VIA MARIPOSA NORTE	92003-5614	1586	HOWARD DEBORAH L

83	PDS2013-TPHSPC-000013	05/02/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) Phase 1, Lots 1 for Las Ventanas see PDS2013-TPHSPC-000013 for all clearances Plan #1A Lot #1 2767 sq ft sfd w/ac, fs 632 sq ft att garage, fin fs 84 sq ft porch	2983 MESA GROVE RD	92028	3483	ZEPHYR PARTNERS FALLBROOK DEVEL
84	PDS2013-TPHSPC-000014	05/07/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) PHASE 2, Lots 2-3, 6-9, 13 for Las Ventanas see PDS2013-TPHASPC-000014 for all clearances Plan Type 1- 2767 sq ft sfd w/ac, fs 632 sq ft att garage, fin fs 84 sq ft porch Plan Type 2 2998 sq ft sfd w/ac, fs 464 sq ft att fin fs garage 271 sq ft det fin fs garage 85 sq ft porch Opt 1 - 280 sq ft veranada Plan type 3 3210 sq ft sfd w/ac, fs 613 sq ft att fin fs garage 49 sq ft entry way, 138 sq ft front porch	2971 MESA GROVE RD	92028		ZEPHYR PARTNERS FALLBROOK DEVEL
85	PDS2013-TPHSPC-000021	05/22/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: TOM MCGUINESS Description of Work: MASTER PLAN FOR MAP 15170 (TM5195-1 & 2) Phase Final C, LOT 77, 1 PRODUCTION UNIT FOR "OAKMONT @ SHADY GROVE) SEE PDS2013-TPHSPC-0000 FOR ALL CLEARANCES (for original submittal). THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 PLAN #1R Lot #77 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE	2006 JAMES GAYNOR ST	92028	3255	K B HOME COASTAL INC
86	PDS2013-RESACC-000327	06/24/13	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Villa Toscana Foundation: SLAB Description of Work: 1636 SF Metal Building (Form 2) (including 1348 SF Enclosed Tack Rm/Stalls and 288 SF Covered Area) for existing sfd	6052 VILLA SANTINI	92003-6225	1636	WEISS JUSTIN F & MARGARETTA
87	PDS2013-TPHSPM-000077	06/25/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) Phase 1, Lots 1 for Las Ventanas see PDS2013-TPHSPC-000013 for all clearances Plan #1A Lot #1 2767 sq ft sfd w/ac, fs 632 sq ft att garage, fin fs 84 sq ft porch	2983 MESA GROVE RD	92028	3483	ZEPHYR PARTNERS FALLBROOK DEVEL

88	PDS2013-TPHSPM-000078	06/25/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) PHASE 2, Lots 2-3, 6-9, 13 for Las Ventanas see PDS2013-TPHASPC-000014 for all clearances Plan Type 1B Lot #2 2767 sq ft sfd w/ac, fs 632 sq ft att garage, fin fs 84 sq ft porch	2971 MESA GROVE RD	92028	3483	ZEPHYR PARTNERS FALLBROOK DEVEL
89	PDS2013-TPHSPM-000079	06/25/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) PHASE 2, Lots 2-3, 6-9, 13 for Las Ventanas see PDS2013-TPHASPC-000014 for all clearances Plan Type 1AR Lot 9 2767 sq ft sfd w/ac, fs 632 sq ft att garage, fin fs 84 sq ft porch	2836 MESA GROVE RD	92028	3483	ZEPHYR PARTNERS FALLBROOK DEVEL
90	PDS2013-TPHSPM-000080	06/25/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) PHASE 2, Lots 2-3, 6-9, 13 for Las Ventanas see PDS2013-TPHASPC-000014 for all clearances Plan Type 2AR LOT #13 2998 sq ft sfd w/ac, fs 464 sq ft att fin fs garage 271 sq ft det fin fs garage 85 sq ft porch	2959 MESA GROVE RD	92028	3818	ZEPHYR PARTNERS FALLBROOK DEVEL
91	PDS2013-TPHSPM-000081	06/25/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) PHASE 2, Lots 2-3, 6-9, 13 for Las Ventanas see PDS2013-TPHASPC-000014 for all clearances Plan Type 2A LOT #3 2998 sq ft sfd w/ac, fs 464 sq ft att fin fs garage 271 sq ft det fin fs garage 85 sq ft porch	2829 MESA GROVE RD	92028	3818	ZEPHYR PARTNERS FALLBROOK DEVEL
92	PDS2013-TPHSPM-000082	06/25/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) PHASE 2, Lots 2-3, 6-9, 13 for Las Ventanas see PDS2013-TPHSPC-000014 for all clearances 8-7-2013 Temp power added vam Plan Type 2RA Lot #13 2998 sq ft sfd w/ac, fs 464 sq ft att fin fs garage 271 sq ft det fin fs garage 85 sq ft porch	2970 MESA GROVE RD	92028	3818	ZEPHYR PARTNERS FALLBROOK DEVEL

93	PDS2013-TPHSPM-000083	06/25/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) PHASE 2, Lots 2-3, 6-9, 13 for Las Ventanas see PDS2013-TPHASPC-000014 for all clearances Plan type 3AR Lot 6 3210 sq ft sfd w/ac, fs 613 sq ft att fin fs garage 49 sq ft entry way, 138 sq ft front porch 6-19-2014 Permit renewed at 25% of current fees. Must have valid inspection with 180 calendar days of todays date to keep permit active. (12-16-2014) vam.	2853 MESA GROVE RD	92028	4010	ZEPHYR PARTNERS FALLBROOK DEVEL
94	PDS2013-TPHSPM-000084	06/25/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) PHASE 2, Lots 2-3, 6-9, 13 for Las Ventanas see PDS2013-TPHASPC-000014 for all clearances Plan type 3BR Lot #7 3210 sq ft sfd w/ac, fs 613 sq ft att fin fs garage 49 sq ft entry way, 138 sq ft front porch 6-19-2014 Permit renewed at 25% of current fees. Must have valid inspections within 180 calendar days (12-16-2014) vam	2841 MESA GROVE RD	92028	4010	ZEPHYR PARTNERS FALLBROOK DEVEL
95	PDS2013-TPHSPC-000024	06/28/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) Phase 6, 3 production units Lots 10-12 for Las Ventanas see pds2013-tphspc-000024 for all clearances Plan # 2 A/B Lots 10, 11 2998 sq ft sfd w/ac, fs 464 sq ft att fin fs garage 271 sq ft det fin fs garage 85 sq ft porch Opt 1 - 280 sq ft veranada Plan #3 BR Lot #12 3210 sq ft sfd w/ac, fs 613 sq ft att fin fs garage 49 sq ft entry way, 138 sq ft front porch	2848 MESA GROVE RD	92028		ZEPHYR PARTNERS FALLBROOK DEVEL

96	PDS2013-CMASPC-000037	07/16/13	PC Invalid Expired	3190 - ASSY - Church, Temple, Mosque	Cross street: W. Lilac Foundation: SLAB Description of Work: 6 6 new structures for Dai Dang Meditation Center as follows Main Hall 6196 sq ft -2 story 4132 sf of worship, 1500 sq ft of offices, 324 sq ft of reastrooms and 240 sq ft of stair wells Meditation Hall - 7664 sq ft 2 story meditation hall, mutiuse room, 2 offices, reception area, 2 restrooms, warming kitchen, stoage and meditation hall storage. Residence Hall 2 story 8936 sf - 13 bedrooms, 3 multiuse rooms, 3 storage rooms, kitchen, 3 libraries, lunch room,office, reception area and 2 common bathrooms. 9000 SF Eng Retaining Walls (max 10') 256 sf pavalion monument sign Ceromінal Gate (entry) 08/20/14 plan change add ret wall and see C of A and check extension til 01/12/2015...VMD	6326 CAMINO DEL REY	92003-4500	32125	DAI DANG
97	PDS2013-TPHSPM-000108	08/01/13	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: TOM MCGUINESS Description of Work: MASTER PLAN FOR MAP 15170 (TM5195-1 & 2) Phase Final C, LOT 77, 1 PRODUCTION UNIT FOR "OAKMONT @ SHADY GROVE) SEE PDS2013-TPHSPC-0000 FOR ALL CLEARANCES (for original submittal). THIS IS THE CODE UPDATE TO BE USED FOR ALL PHASES SUBMITTED AFTER 1-1-2008 PLAN #1R Lot #77 2623 SQ FT SFD W/ AC,FS 632 SQ FT FIN. GARAGE	2006 JAMES GAYNOR ST	92028		K B HOME COASTAL INC
98	PDS2013-COMPRI-000037	08/26/13	Issued Expired	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: EAST MISSION RD Foundation: DIRT Description of Work: 1200 SQFT METAL AG BUILDING (USING FORM #2) W/ 1080 SQFT OF METAL OVERHANGS **1ST STRUCTURE ON LOT **NO ELECTRICAL OR PLUMBING	1187 RIVERVIEW DR	92028	2280	BOREN BRIAN&STEPHANIE
99	PDS2013-RESACC-000467	09/13/13	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: WINTERHAVEN Foundation: SLAB Description of Work: 1997 SQFT METAL BARN W/ COVERED PORCH (USING FORM #2) W/ MISC ELECTRICAL.	2867 VIA RANCHEROS WAY	92028	1997	DANIEL DAVIS

100	PDS2013-RESACC-000490	09/24/13	PC Invalid Expired	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Vista Del Mar Foundation: SLAB Description of Work: 5000 sq ft Ag Barn with full bath(no interior access to bathroom)(cannot final until house finals or on same day pds2013-respri-000231) 01/07/16: PC PACKET PURGE. -DRW	40151 SKY RANCH DR	92028	5000	R S SKY RANCH FAMILY LTD PARTNERSHIP
101	PDS2013-COMACC-000185	10/23/13	Completed	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: Frolic Way Foundation: RAISED (remove all that do not apply) Description of Work: Com. Ag Storage building 120 sq ft sitting on top of 33' sq ft by 6'8" high retaining wall 224 sq ft) and a new 84 sq ft gate(2 -6' x 7" panels) for Sunshine Growers	2104 E ALVARADO ST	92028	428	JONES WILSON B&HELEN J FAMILY TRUST 06-07-95
102	PDS2013-RESACC-000602	11/19/13	Issued Expired	3285 - ACC - Greenhouses	Cross street: Palomar Foundation: Dirt/Piers Description of Work: 360 sqft Greenhouse (screened)	1310 EL NIDO DR	92028	360	BOWEN KIMBERLEE A REVOCABLE TRUST
103	PDS2013-RESACC-000608	11/20/13	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: ASPEN DR Foundation: SLAB Description of Work: 1200 SQFT DETACHED METAL AG STORAGE BUILDING This is a restart of PDS2012-1001-20120041 *****Packet in drawer under Monzon* 9/23/2014 Renewed at 25% of current fee. Must have a valid inspection every 180 days to keep active. SS	2713 RAINBOW GLEN RD	92028	1200	MONZON L L C
104	PDS2013-RESACC-000624	12/02/13	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Morro Hills Description of Work: 752 Shade Structure addition to Barn under constuction (see PDS2013-RESACC-000007)	5078 SAN JACINTO EAST CIR	92028	752	SHANAHAN MARY F
105	PDS2013-RESACC-000654	12/12/13	Issued Expired	3285 - ACC - Greenhouses	Cross street: Rainbow Glen road Foundation: concrete ribion footings Description of Work:1080 sf Round style green house with misc elect and plumbing.	1846 RAINBOW GLEN RD	92028	1080	EZIS FAMILY TRUST 03-05-99

106	PDS2013-TMASPC-000016	12/28/13	PC Invalid Expired	1018 - RES - Tract Models/Master Plan	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) 3 Model types,2 Built, Lots 17 & 18 for Chaparral @ Horse Creek Ridge See PDS2013-TMASPC-000016 for all clearances (Detached condos) Plan 1 Lot 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Lot 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Lot 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch (Elev A & B only)	5328 PALA RD	92028	2240	DR HORTON LA HOLDING Co., Inc.
107	PDS2013-TMODPC-000050	12/28/13	PC Invalid Expired	1018 - RES - Tract Models/Master Plan	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) 3 Model types,2 Built, Lots 17 & 18 for Chaparral @ Horse Creek Ridge See PDS2013-TMASPC-000016 for all clearances (Detached condos) Plan 1 Lot # 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch	5328 PALA RD	92028	2078	DR HORTON LA HOLDING Co., Inc.
108	PDS2013-TMODPC-000051	12/28/13	PC Invalid Expired	1018 - RES - Tract Models/Master Plan	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) 3 Model types,2 Built, Lots 17 & 18 for Chaparral @ Horse Creek Ridge See PDS2013-TMASPC-000016 for all clearances (Detached condos) Plan 2 Lot 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only)	5328 PALA RD	92028	2240	DR HORTON LA HOLDING Co., Inc.

109	PDS2013-TMODPC-000052	12/28/13	PC Invalid Expired	1018 - RES - Tract Models/Master Plan	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) 3 Model types,2 Built, Lots 17 & 18 for Chaparral @ Horse Creek Ridge See PDS2013-TMASPC-000016 for all clearances (Detached condos) Plan 3 Lot 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch (Elev A & B only)	5328 PALA RD	92028	2544	DR HORTON LA HOLDING Co., Inc.
110	PDS2013-RESACC-000682	12/30/13	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: E. Mission Foundation: SLAB Description of Work: 1500 sqft detached metal Ag. building (Form 2) to existing SFD	810 EL PAISANO DR	92028	1500	BERGER JONATHAN&KELLI
111	PDS2014-COMPRI-000001	01/02/14	Completed	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: De Luz Murrieta Foundation: SLAB Description of Work: 4800 SF Det Metal Ag Bldg 'Form 2' for existing Comm Ag Use 'Van Ginkel Ranch' *no elec/plumbing*	39452 DE LUZ RD	92028	4800	VANGINKEL NORMAN TR&VANGINKEL DEBORAH TR
112	PDS2014-TPHSPM-000007	01/17/14	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa . Description of Work: Master plan for 14748 (TM 4729.1) Phase 6, 3 production units Lots 10-12 for Las Ventanas see pds2013-tphspc-000024 for all clearances Plan # 2 A Lots 10 2998 sq ft sfd w/ac, fs 464 sq ft att fin fs garage 271 sq ft det fin fs garage 85 sq ft porch Opt 1 - 280 sq ft veranada	2848 MESA GROVE RD	92028	3818	ZEPHYR PARTNERS FALLBROOK DEVEL
113	PDS2014-TPHSPM-000008	01/17/14	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) Phase 6, 3 production units Lots 10-12 for Las Ventanas see pds2013-tphspc-000024 for all clearances Plan # 2 A/B Lots 10, 11 2998 sq ft sfd w/ac, fs 464 sq ft att fin fs garage 271 sq ft det fin fs garage 85 sq ft porch Opt 1 - 280 sq ft veranada	2982 MESA GROVE RD	92028	3818	ZEPHYR PARTNERS FALLBROOK DEVEL
114	PDS2014-TPHSPM-000009	01/17/14	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: Pala Mesa Description of Work: Master plan for 14748 (TM 4729.1) Phase 6, 3 production units Lots 10-12 for Las Ventanas see pds2013-tphspc-000024 for all clearances (final phase) Plan #3 BR Lot #12 3210 sq ft sfd w/ac, fs 613 sq ft att fin fs garage 49 sq ft entry way, 138 sq ft front porch	2994 MESA GROVE RD	92028	4010	ZEPHYR PARTNERS FALLBROOK DEVEL

115	PDS2014-TMASPC-000004	02/06/14	PC Invalid Expired	1018 - RES - Tract Models/Master Plan	Cross street: Mission Road Description of Work: Master plan TM 4713 Units 7&8 4 plan types one built Lot 246 for Meritage Homes "Peppertree" (green building) 1-30-2015 Plan check renewed for 6 months one time only (plan check expired 2-6-20165 but customer states no way it will be not be able to be issued by then) vam Plan Type 1 3304 sq ft sfd w/ac, fs (A) 3300 sq ft sfd w/ac, fs (B) 3287 sq ft sfd w/ac, fs (C) 810 sf fin fs garage Covered Porch A & C 207 SF, B - 157 sf Covered Patio 218 sf Option #1-399 sf patio Option #2-261 sf hobby rm /-261 sf gar Option #3-261 sf master exercise /-261 sf gar Option #4-261 sf den /-261 sf gar Plan Type 2 3630 sq ft sfd w/ac, fs (A) 3621 sq ft sfd w/ac, fs (B) 3631 sq ft sfd w/ac, fs (C) 928 sf fin fs garage Breezeway A - 110 sf, B - 117 sf, C - 115 sf	PEPPERTREE LN	92028		MERITAGE HOMES OF CALIFORNIA INC
116	PDS2014-TMODPC-000012	02/06/14	PC Invalid Expired	1018 - RES - Tract Models/Master Plan	Cross street: Mission Road Description of Work: Master plan TM 4713 Units 7&8 4 plan types one built Lot 246 for Meritage Homes "Peppertree" (green building) Plan Type 1 3304 sq ft sfd w/ac, fs (A) 3300 sq ft sfd w/ac, fs (B) 3287 sq ft sfd w/ac, fs (C) 810 sf fin fs garage Covered Porch A & C 207 SF, B - 157 sf Covered Patio 218 sf Option #1-399 sf patio Option #2-261 sf hobby rm /-261 sf gar Option #3-261 sf master exercise /-261 sf gar Option #4-261 sf den /-261 sf gar	PEPPERTREE LN	92028	4992	MERITAGE HOMES OF CALIFORNIA INC
117	PDS2014-TMODPC-000013	02/06/14	PC Invalid Expired	1018 - RES - Tract Models/Master Plan	Cross street: Mission Road Description of Work: Master plan TM 4713 Units 7&8 4 plan types one built Lot 246 for Meritage Homes "Peppertree" (green building) Plan Type 2 3630 sq ft sfd w/ac, fs (A) 3621 sq ft sfd w/ac, fs (B) 3631 sq ft sfd w/ac, fs (C) 928 sf fin fs garage Breezeway A - 110 sf, B - 117 sf, C - 115 sf Covered Porch A - 4 sf, B & C 130 SF Covered Patio 220 sf	PEPPERTREE LN	92028	5026	MERITAGE HOMES OF CALIFORNIA INC

118	PDS2014-TMODPC-000014	02/06/14	PC Invalid Expired	1018 - RES - Tract Models/Master Plan	Cross street: Mission Road Description of Work: Master plan TM 4713 Units 7&8 4 plan types one built Lot 246 for Meritage Homes "Peppertree" (green building) Plan Type 3 3771 sq ft sfd a/c, fs 653 sf fin fs garage Covered Porch A - 182 sf, B - 69 sf , C - 189 sf Covered Patio 220 sf Opt 1 - 300 sq ft 1 car	PEPPERTREE LN	92028	5133	MERITAGE HOMES OF CALIFORNIA INC
119	PDS2014-TMODPC-000015	02/06/14	PC Invalid Expired	1018 - RES - Tract Models/Master Plan	Cross street: Mission Road Description of Work: Master plan TM 4713 Units 7&8 4 plan types one built Lot 246 for Meritage Homes "Peppertree" (green building) Plan Type 4 3999 sq ft sfd w/ac, fs (A&C) 4013 sq ft sfd w/ac, fs (B) 766 sf fin fs garage Portico A & B 78 sf, C - 44 sf Covered Porch A & B - 9 sf, C - 15 SF Covered Patio 190 Option # 1 91 sq ft garage space added to existing garage(at courtyard)	PEPPERTREE LN	92028	5153	MERITAGE HOMES OF CALIFORNIA INC
120	PDS2014-RESACC-000118	02/28/14	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Mira Monte Rd Foundation: SLAB Description of Work: 400 sqft detached Ag. building for existing SFD	40686 LOS ROBLES RD	92028	400	FOSTER EBEN&SHANEEN
121	PDS2014-COMACC-000026	03/10/14	PC Invalid Expired	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: RAINBOW CREEK RD Foundation: SLAB Description of Work: 272 SQFT COMMERCIAL AG STORAGE BLDG W/ ELECTRICAL	2752 RAINBOW VALLEY BLVD	92028	272	SCYMACK AHMAD-POOR
122	PDS2014-COMPRI-000021	03/13/14	Completed	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: Rice Canyon Foundation: SLAB Description of Work: 1st Structure on Lot---1350 sqft Metal (form 2A) Ag Building for " Los Arqueros Ranch" (no elect/plumb) 3-20-2015 Courtesy renewal given per RLN. Must have valid inspection within 180 calendar days from todays date. vam	780 RAINBOW CREST RD	92028	1350	BOWMAN DIPIETRO FAMILY TRUST 04-03-06
123	PDS2014-RESACC-000330	05/16/14	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Elaines Ln off of Miles Ranch Rd Foundation: SLAB Description of Work: 1560 sq ft ag storage building with a 340 sq ft retaining wall county standard (part of foundation) AND MISC. ELECTRICAL for existing SFD.	5249 OLIVE HILL RD	92028	1900	LONGWELL JOHN D REVOCABLE TRUST 08-08-13 ET AL

124	PDS2014-TPHSPC-000051	06/14/14	PC Invalid Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) Phase 1, 12 Production Units Lots 177-188 for Chaparral @ Horse Creek Ridge See PDS2014-TPHSPC-000051 for all clearances (Detached condos) Plan 1 Lot /Unit 179, 181, 185, 187 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Lot /Unit 178, 182, 184, 188 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Lot /Unit 177, 180, 183, 186 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch	5328 PALA RD	92028	DR HORTON LA HOLDING Co., Inc.
125	PDS2014-TPHSPC-000052	06/14/14	PC Invalid Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) Phase 2, 12 Production Units Lots 165-176 for Chaparral @ Horse Creek Ridge. See PDS2014-TPHSPC-000052 for all clearances (Detached condos) Plan 1 Lot 167, 169, 173, 175 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Lot 166, 170, 172, 176 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Lot 165, 168, 171, 174 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch	5328 PALA RD	92028	DR HORTON LA HOLDING Co., Inc.

126	PDS2014-TPHSPC-000053	06/14/14	PC Invalid Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) Phase 3, 8 Production Units Lots 157-164 for Chaparral @ Horse Creek Ridge See PDS2014-TPHSPC-000053 for all clearances (Detached condos) Plan 1 Lot 161, 163 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Lot 158, 160, 164 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Lot 157, 159, 162 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch (Elev A & B only)	5328 PALA RD	92028	DR HORTON LA HOLDING Co., Inc.
127	PDS2014-TPHSPC-000054	06/14/14	PC Invalid Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) Phase 4, 16 Production Units. Lots(units) 141-156 for "Chaparral" @ Horse Creek Ridge See PDS2014-TPHSPC-000054 for all clearances (Detached condos) Plan 1 Unit 143,145, 147, 151,153, 155 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Unit 142,148, 150, 152, 156 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Unit 141, 144, 146, 149, 154 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch (Elev A & B only)	5328 PALA RD	92028	DR HORTON LA HOLDING Co., Inc.

128	PDS2014-TPHSPC-000055	06/14/14	PC Invalid Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) Phase 5, 16 Production Units Lots 125-140 for Chaparral @ Horse Creek Ridge See PDS2014-TPHSPC-000055 for all clearances (Detached condos) Plan 1 Lot 127, 129, 131, 135, 137, 139 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Lot 126, 132, 134, 136, 140 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Lot 125, 128, 130, 133, 138 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch (Elev A & B only)	5328 PALA RD	92028	DR HORTON LA HOLDING Co., Inc.
129	PDS2014-TPHSPC-000056	06/14/14	PC Invalid Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) Phase 6, 11 Production Units Lots 1-6 & 38-42 for Chaparral @ Horse Creek Ridge See PDS2014-TPHSPC-000056 for all clearances (Detached condos) Plan 1 Lot 2, 5, 41 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Lot 1, 3, 39, 42 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Lot 4, 6, 38, 40 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch (Elev A & B only)	5328 PALA RD	92028	DR HORTON LA HOLDING Co., Inc.

130	PDS2014-TPHSPC-000057	06/14/14	PC Invalid Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) Phase 7, 7 Production Units Lots 31-37 for Chaparral @ Horse Creek Ridge See PDS2014-TPHSPC-000057 for all clearances (Detached condos) Plan 1 Lot 33, 35, 37 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Lot 32, 36 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Lot 31, 34, 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch (Elev A & B only)	5328 PALA RD	92028	DR HORTON LA HOLDING Co., Inc.
131	PDS2014-TPHSPC-000058	06/14/14	PC Invalid Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) Phase 8, 9 Production Units Lots 7-9 & 25-30 for Chaparral @ Horse Creek Ridge See PDS2014-TPHSPC-000058 for all clearances (Detached condos) Plan 1 Lot 9, 27, 29 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Lot 8, 26, 30 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Lot 7, 25, 28 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch (Elev A & B only)	5328 PALA RD	92028	DR HORTON LA HOLDING Co., Inc.

132	PDS2014-TPHSPC-000059	06/14/14	PC Invalid Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) Phase 9, 9 Production Units Lots 10-12 & 19-24 for Chaparral @ Horse Creek Ridge See PDS2014-TPHSPC-000059 for all clearances (Detached condos) Plan 1 Lot 11, 20, 23 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Lot 10, 19, 24 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Lot 12, 21, 22 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch (Elev A & B only)	5328 PALA RD	92028	DR HORTON LA HOLDING Co., Inc.
133	PDS2014-TPHSPC-000060	06/14/14	PC Invalid Expired	1019 - RES - Tract - Subsequent Phases	Cross street: Garrano Lane Description of Work: Master plan for Map (tm 5338-7) Phase 10- Build Out, 4 Production Units Lots 13-16 for Chaparral @ Horse Creek Ridge See PDS2014-TPHSPC-000060 for all clearances (Detached condos) Plan 1 Lot 13 1568 sqft SFD w/ac, fs (2 story) 456 sqft fin, fs garage 54 sqft front porch Plan 2 Lot 14, 16 1746 sq ft SFD w/ac, fs (2 story) 438 sq ft fin, fs garage Option 1: 56 sq ft front porch (All Elev) Option 2: 65 sq ft front porch (Elev B only) Option 3: 140 sq ft front porch (Elev C only) Plan 3 Lot 15 2023 sq ft SFD w/ac, fs (2 story) 449 sq ft fin, fs garage Option 1: 72 sq ft front porch (All Elev) Option 2: 80 sq ft front porch (Elev A & B only)	5328 PALA RD	92028	DR HORTON LA HOLDING Co., Inc.

134	PDS2014-COMPRI-000031	06/16/14	Issued	3190 - ASSY - Church, Temple, Mosque	Cross street: Foundation: SLAB Description of Work: 'AS BUILT' 6282 SF TOTAL TWO STORY CONVERT EXISTING BANK INTO CHURCH. INCLUDING 667 SF ADDITION (CONVERSION OF PATIO TO CHURCH) , TO INCLUDE 2283 SF ASSEMBLY, 777 SF BUSINESS, 225 SF KITCHEN & EPM, (see PDS1999-1017-99000197.157 LF INTERIOR TENANT IMPROVEMENT. 'ALPHA OMEGA APOSTOLIC OF FALLBROOK' **FILED UNDER VERDIN** previous plan check PDS1999-1017-99000197 7-24-2015 - One time only Plan check renewal at 25% of current fees. Good till 12-11-2015 vam	135 E IVY ST	92028	6282	APOSTOLIC ASSEMBLY OF THE FAITH IN CHRIST JESUS
135	PDS2014-RESGRD-000050	06/16/14	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Elaines Ln off of Miles Ranch Rd Foundation: SLAB Description of Work: GRADING for PDS2014-RESACC-000330 (1560 sq ft ag storage building with a 340 sq ft retaining wall county standard (part of foundation) for existing SFD)	5249 OLIVE HILL RD	92028	1560	LONGWELL JOHN D REVOCABLE TRUST 08-08-13 ET AL
136	PDS2014-RESACC-000480	07/17/14	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Calmin Foundation: SLAB Description of Work: 875 sqft detached ag. building for existing SFD	1911 GREEN CANYON RD	92028	875	Stanley Caputo
137	PDS2014-RESACC-000603	09/12/14	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: North River Rd Foundation: SLAB Description of Work: 2000 sqft barn for existing SFD	30981 VIA PUERTA DEL SOL	92003	2000	LI JING
138	PDS2014-COMPRI-000053	09/18/14	Issued Expired	1110 - COM - M.H. Business Uses	Cross street: Pala Rd Foundation: Piers Description of Work: 2 Office Trailers 1 1440 q ft and 2 - 960 sq ft (for existing project to replace aquaduct water pipes - S D County Water Authority	4399 PALA RD OFFICE TRS	92028		SAN DIEGO COUNTY WATER AUTHORITY
139	PDS2014-RESACC-000691	10/23/14	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: SAN JACINTO TERRACE Foundation: SLAB Description of Work: 2000 SF AG BUILDING Misc electrical for fire sprinkler bell.	880 DEL VALLE DR	92028	2000	JACOBI ROBERT L&THERESA L
140	PDS2014-COMACC-000135	10/30/14	Completed	1110 - COM - M.H. Business Uses	Cross street: RAINBOW VALLEY BLVD Foundation: RAISED Description of Work: REPLACE EXISTING 720 SQFT OFFICE TRAILER W/ NEW 720 SQFT OFFICE TRAILER, ADA RAMP, ENTRY DECK, & STAIRS (180 SQFT), MISC ELECTRICAL & MECHANICAL FOR "SDG&E" (EMERGENCY CONTROL CENTER).	3051 RAINBOW VALLEY BLVD	92028	900	SAN DIEGO GAS&ELECTRIC CO

141	PDS2014-COMACC-000155	12/16/14	Completed	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: North River Foundation: SLAB Description of Work: 1029 sq ft Covered structure (open on all sides) for horse boarding facility(to be permitted seperately)	30981 VIA PUERTA DEL SOL	92003	1029	LI JING
142	PDS2014-COMACC-000159	12/23/14	PC Invalid Expired	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: Santa Margarita Foundation: RAISED Description of Work: 5016 sqft Agricultural Cold Storage building w/ac for avocado storage for McDaniel Fruit Co. Misc electrical (400 AMPS) and mechanical . ***This record replaces permit #PDS2012-1019-20120002 which expired w/ no inspections	921 E MISSION RD	92028	5016	
143	PDS2014-RESACC-000814	12/23/14	PC Invalid Expired	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Via Quaviva Foundation: SLAB Description of Work: 1494 sqft detached Ag building w/ attached 723 sqft workshop for existing SFD 12-28-15 PACKET PURGED...TLH	210 RANCHO CAMINO	92028	2217	Mark Carsey
144	PDS2015-RESGRD-000002	01/20/15	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: North River Rd Foundation: SLAB Description of Work: Minor grading for PDS2014-RESACC-000603 (2000 sqft barn for existing SFD)	30981 VIA PUERTA DEL SOL	92003		LI JING
145	PDS2015-RESACC-000141	03/04/15	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Reche Road Foundation: SLAB Description of Work: 1824 sq. ft. barn with 576 attached shade structure/stable	1366 S LIVE OAK PARK RD	92028	2400	KOGLER FAMILY TRUST 08-29-97
146	PDS2015-RESACC-000278	04/22/15	PC Expired	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: VALLE DE SOL Foundation: SLAB Description of Work: FICO AS-BUILT 415 SF DETACHED AG STORAGE BLDG (ONE FLOOR TO BE REMOVED) FOR (E) SFD.	4438 VIA DE LOS CEPILLOS	92003	415	STONEWOOD PROPERTIES TRUST 12-07-97
147	PDS2015-RESACC-000336	05/11/15	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: AFTON FARMS LN Description of Work: 1704 SQ FT BARN (650 SF ENCLOSED AND 1,054 SQ FT COVERED AREA) FOR EXISTING SFD	7270 VIA MARIPOSA SUR	92003	1704	OESCHGER THOMAS N REVOCABLE 2000 TRUST 04-11-00
148	PDS2015-RESACC-000348	05/15/15	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: GREEN BRIAR DRIVE Foundation: SLAB Description of Work: 600 SF DETACHED AG STORAGE BUILDING WITH 200 SF COVERED STORAGE FOR EXISTING SFD.	1616 GREEN BRIAR LN	92028	800	KATHY RIETKERK

149	PDS2015-COMPRI-000020	06/01/15	PC Expired	3200 - COM - Industrial Bldgs	Cross street: E. MISSION ROAD Foundation: SLAB Description of Work: 3754 SQFT NEW INDUSTRIAL BUILDING TO HAVE 5 INDUSTRIAL SUITES -- EACH SUITE TO HAVE AN OFFICE AREA, ADA BATHROOM, & STORAGE ROOM ABOVE, MISC EPM (NO TENANTS AT THIS TIME).	421 INDUSTRIAL WAY	92028	3754	ARNOLD RASHKIN
150	PDS2015-TPHSPM-000177	06/14/15	Completed	1018 - RES - Tract Models/Master Plan	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r 4 plan types 3 built lots 2-4 for Pardee Homes "Olive Hill Estates" See PDS2014-TMASPC-000001 for all clearances PLAN 3BR2 LOt #2 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(kpatio) Opt# 2 - 592 sq ft det guest living quarters	5883 RANCHO DEL CABALLO	92003	4959	PARDEE HOMES
151	PDS2015-TPHSPM-000178	06/14/15	Completed	1018 - RES - Tract Models/Master Plan	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r 4 plan types 3 built lots 2-4 for Pardee Homes "Olive Hill Estates" See PDS2014-TMASPC-000001 for all clearances PLAN 4XC LOT #3 3846 sf SFD w/ac, fs 646 sf attached gar fin fs Porch 73 sf 158 sq ft portico 289 sq ft outdoor room(kpatio)	5871 RANCHO DEL CABALLO	92003	5012	PARDEE HOMES
152	PDS2015-TPHSPM-000179	06/14/15	Completed	1018 - RES - Tract Models/Master Plan	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r 4 plan types 3 built lots 2-4 for Pardee Homes "Olive Hill Estates" See PDS2014-TMASPC-000001 for all clearances PLAN 2A LOT #4 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev A -50 198 sq ft outdoor room(kpatio)	5859 RANCHO DEL CABALLO	92003	3914	PARDEE HOMES

153	PDS2015-CMASPC-000026	06/24/15	PC About to Expire	3270 - COM - Stores, Restaurants, Warehouses	Cross street: VIA BELAMONTE Foundation: SLAB Description of Work: 934 SQFT NEW RESTAURANT "NESSY BURGER" TO INCLUDE FOOD PREP AREA, STORAGE AREAS, WALK-IN COOLER, MEN & WOMEN'S ADA RESTROOMS, BEVERAGE AREA, W/ 559 SQFT OUTDOOR SEATING AREA (UNCOVERED), & 422 SQFT ATTACHED PATIO COVER. ALSO, PARKING LOT LIGHTING & MONUMENT SIGN. REMOVE EXISTING FOOD SERVICE TRAILER. SEE PDS2015-CMASPC-000026 FOR ALL CLEARANCES. 934 SQFT RESTAURANT PARKING LOT LIGHTING MONUMENT SIGN	3235 S OLD HIGHWAY 395	92028	934	
154	PDS2015-COMPRI-000025	07/02/15	PC About to Expire	3230 - COM - Hospitals, Resthome, Convalescent	Cross street: Rockycrest Lane Foundation: SLAB Description of Work: 88970 sqft 2-story residential care facility (which includes: 9328 sqft lobby/ theater, 14380 sqft congregate living space, 478 sqft exercise room, 4407 sqft non-habitable space, 219 sqft out patient space, 1262 sqft offices, 345 sqft meds room, 743 sqft deck, trash enclosure, and 2280 sqft patio covers) for "Fallbrook Assisted Living".	1735 S MISSION RD	92028	91250	FALLBROOK SENIOR LIVING LLC
155	PDS2015-CMASPC-000028	07/08/15	PC About to Expire	3190 - ASSY - Church, Temple, Mosque	Cross street: W. Lilac Foundation: SLAB Description of Work: 6 new structures for Dai Dang Meditation Center as follows Main Hall 6134 sq ft -2 story 4132 sf of worship, 1500 sq ft of offices, 324 sq ft of restrooms and 240 sq ft of stair wells. 2486sqft porch on lower level and 94 sqft ramp on upper level. Meditation Hall - 8090 sq ft 2 story meditation hall, muti-use room, 2 offices, reception area, 2 restrooms, warming kitchen, storage and meditation hall storage. 4290 sqft porch. Residence Hall 2 story 9501 sf - 13 bedrooms, 3 multiuse rooms, 3 storage rooms, kitchen, 3 libraries, lunch room,office, reception area and 2 common bathrooms. 4752 sqft porches. 9000 SF Eng Retaining Walls (max 10') 288 sf pavilion monument sign Cerominal Gate (entry) 2/5/2016 Plan Change. Update sqft per MUP. See C	6326 CAM DEL REY	92003	44611	Dai Dang Meditation Center

156	PDS2015-RESACC-000593	08/19/15	Issued	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: MORRO HILLS ROAD Foundation: SLAB Description of Work: 2536 SQ. FT. AG BUILDING; 853 SQ, FT, ATTACHED GARAGE; 1152 SQ. FT. PATIO COVER; 64 SQ. FT. SFD ADDITION	4878 SAN JACINTO EAST CIR	92028	4605	BROWN JAMES R&LINDA A LIVING TRUST 11-10-99
157	PDS2015-COMPRI-000038	08/21/15	Issued	3240 - COM - Office, Bank (Doctor, Attny, Dentist)	Cross street: Pico Ave Foundation: SLAB Description of Work: 640 sq ft Office w/restroom w/ 2nd story storage (Tuff Shed) for used car lot AutoMaxMotors USA Inc 200 amps. Misc EPM	205 W MISSION RD	92028	640	PAULSON DAVID A
158	PDS2015-RESACC-000606	08/24/15	Open	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: AFTON FARMES LAND Foundation: SLAB Description of Work: 1296 SQ. FT. AG BUILDING	7064 VIA MARIPOSA NORTE	92003	1296	PROVIN SANFORD S III&DONNAJEAN M
159	PDS2015-RESACC-000609	08/25/15	Completed	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Havencrest Dr Foundation: SLAB Description of Work: 864 sqft detached Ag building w/ misc elect and attached outdoor 288 sqft covered storage for existing SFD.	1441 WINTER HAVEN RD	92028	1152	SHADLE STEVEN D&DENISE G
160	PDS2015-RESACC-000610	08/25/15	Issued	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Tecolote Lane Foundation: SLAB Description of Work: 1800 sqft detached Ag building (w/ 309 sqft overhang eaves for covered storage) w/ misc elect and 100 LF County standard retaining wall (8' max htg) for existing SFD and 200 amp meter for AG building.	2175 TECALOTE DR	92028	2600	Ron Iacobelli
161	PDS2015-RESGRD-000073	08/25/15	Issued	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: AFTON FARMES LANE Description of Work: (GRADING FOR PDS2015-RESACC-000606)1296 SQ. FT. AG BUILDING	7064 VIA MARIPOSA NORTE	92003	1296	PROVIN SANFORD S III&DONNAJEAN M
162	PDS2015-RESACC-000634	09/09/15	Issued	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: MONTECITO DR Foundation: RAISED Description of Work: 375 SF DETACHED ALUMINIUM/GLASS GREENHOUSE W/ ELECTRICAL FOR (E) SFD.	1310 MONTECITO LN	92028	375	ALDINGER KARL E&MARIE-PIERRE
163	PDS2015-RESACC-000660	09/22/15	Open	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: VALLE DEL SOL Foundation: SLAB Description of Work: FICO-381SF AS BUILT AG BUILDING	4438 VIA DE LOS CEPILLOS	92003	131	STONEWOOD PROPERTIES TRUST 12-07-97

164	PDS2015-TPHSPM-000337	09/28/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 (tm 4976-rpl-4r) Phase 3, 3 production units lots 5-7 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000030 for all clearances PLAN 2 lot #5 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev , B -214 sf 198 sq ft outdoor room(kpatio)	5847 RANCHO DEL CABALLO	92003	4039	PARDEE HOMES
165	PDS2015-TPHSPM-000338	09/28/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 (tm 4976-rpl-4r) Phase 3, 3 production units lots 5-7 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000030 for all clearances PLAN 2A Lot #6 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev A -25 sf, 198 sq ft outdoor room(kpatio) :	5835 RANCHO DEL CABALLO	92003	3925	PARDEE HOMES
166	PDS2015-TPHSPM-000339	09/28/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 (tm 4976-rpl-4r) Phase 3, 3 production units lots 5-7 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000030 for all clearances PLAN 1 2962 sf 2 story SFD w/ac, fs 629 sf attached gar fin fs Porches - Elev , B -175 sf, C-78 sf Opt # 1- 146 sf Covered patio Opt# 2 - 285 sqft Covered Patio 10/29/15: Plan change to plan type 1 - add optional 285 sqft patio cover (see pds2014-tmaspc-000001 for all clearances)...vmt for vam	5821 RANCHO DEL CABALLO	92003	3669	PARDEE HOMES

167	PDS2015-TPHSPC-000040	11/04/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: HWY 78 Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r - Phase 3, 7 production units. lots 13, 14, 17, & 31-34, for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000040 for all clearances PLAN 1 2962 sf 2 story SFD w/ac, fs 629 sf attached gar fin fs Porches - Elev , B -175 sf, C-78 sf Opt # 1- 146 sf Covered patio Opt # 2 - 285 sqft Covered Patio PLAN 2 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev A -25 sf, B - 214 sf, C- 36 sf 198 sq ft outdoor room(kpatio) Opt # 1 - detached 592 sq ft guest living quarters PLAN 3 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(kpatio)	5741 RANCHO DEL CABALLO	92003		PARDEE HOMES
168	PDS2015-COMPRI-000051	11/20/15	Open	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: Reche Rd Foundation: SLAB Description of Work: New 1306 sq ft Boutique Winery with tasting room and restroom with fs/ac and 420 sq ft ada accessible covered deck for Myrtle Creek Winery/ (retaining walls shown on plans are less than 3' in height no permit required)	1600 VIA VISTA	92028	2146	SHERMAN BRUCE C&MARILYN L
169	PDS2015-TPHSPM-000393	11/30/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 (tm 4976-rpl-4r) Phase 2 -7 units lots 10-15, 35-37 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000038 for all clearances PLAN 3AR Lot 10 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - ElevC - 108 sf 177 sq ft outdoor room(patio)	5797 RANCHO DEL CABALLO	92003	4367	PARDEE HOMES
170	PDS2015-TPHSPM-000394	11/30/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 (tm 4976-rpl-4r) Phase 2 -7 units lots 10-15, 35-37 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000038 for all clearances PLAN 2B Lot #11 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - B -214 sf, 198 sq ft outdoor room(patio)	5785 RANCHO DEL CABALLO	92003	4078	PARDEE HOMES

171	PDS2015-TPHSPM-000395	11/30/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 (tm 4976-rpl-4r) Phase 2 -7 units lots 10-15, 35-37 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000038 for all clearances PLAN 3BR2 Lot #12 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(ppatio) Opt # 2 - Detached 592 sq ft guest living quarters	5765 RANCHO DEL CABALLO	92003	4959	PARDEE HOMES
172	PDS2015-TPHSPM-000396	11/30/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 (tm 4976-rpl-4r) Phase 2 -7 units lots 10-15, 35-37 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000038 for all clearances PLAN 2C Lot 15 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - C- 36 sf 198 sq ft outdoor room(kpatio)	5777 RANCHO DEL CABALLO	92003	3864	PARDEE HOMES
173	PDS2015-TPHSPM-000397	11/30/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 (tm 4976-rpl-4r) Phase 2 -7 units lots 10-15, 35-37 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000038 for all clearances PLAN 4AR Lot #35 3846 sf SFD w/ac, fs 646 sf attached gar fin fs Porch 73 sf 158 sq ft portico 289 sq ft outdoor room(patio)	5762 RANCHO DEL CABALLO	92003	5074	PARDEE HOMES
174	PDS2015-TPHSPM-000398	11/30/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 (tm 4976-rpl-4r) Phase 2 -7 units lots 10-15, 35-37 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000038 for all clearances PLAN 2CR Lot #36 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - C- 36 sf 198 sq ft outdoor room(patio)	5776 RANCHO DEL CABALLO	92003	3864	PARDEE HOMES
175	PDS2015-TPHSPM-000399	11/30/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 (tm 4976-rpl-4r) Phase 2 -7 units lots 10-15, 35-37 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000038 for all clearances PLAN 1BR Lot #37 2962 sf 2 story SFD w/ac, fs 629 sf attached gar fin fs Porches - Elev , B -175 sf,	5790 RANCHO DEL CABALLO	92003	3912	PARDEE HOMES

176	PDS2015-TPHSPC-000045	12/09/15	Completed	1018 - RES - Tract Models/Master Plan	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 4, 7 production units, Lots 16, 18-21, 29-30 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000035 for all clearances PLAN 1 2962 sf 2 story SFD w/ac, fs 629 sf attached gar fin fs Porches - Elev , B -175 sf, C-78 sf Opt # 1- 146 sf Covered patio Opt # 2 285 sq ft Patio cover PLAN 2 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev A -25 sf, B - 214 sf, C- 36 sf 198 sq ft outdoor room(patio) Opt # 2 - detached 592 sq ft guest living quarters PLAN 3 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(patio) Opt #1 - 4th Car Garage 302 sf Opt #2 - 592 sq ft guest	5817 VIA DEL CABALLERO	92003		PARDEE HOMES
177	PDS2015-RESACC-000852	12/14/15	Issued	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Vista De Lomas Foundation: SLAB Description of Work: 1440 sf AG building and 700 sf retaining wall (foundation for one side of building 45 lf) (80x 10'8' heigh) for existing sfd 6/8/2016 Plan change. See Comments applied by MEC in C of A... SS	30818 CHATEAU HAUT BRION	92003	1880	DEWALT DIANA R
178	PDS2015-TPHSPM-000423	12/23/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: HWY 78 Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r - Phase 3, 7 production units. lots 13, 14, 17, & 31-34, for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000040 for all clearances PLAN 4C2, Lot #13 3846 sf SFD w/ac, fs 646 sf attached gar fin fs Porch 289 sf 158 sq ft portico 289 sq ft outdoor room(patio) Opt # 2 - Detached 592 sq ft guest living quarters	5741 RANCHO DEL CABALLO	92003	5531	PARDEE HOMES

179	PDS2015-TPHSPM-000424	12/23/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: HWY 78 Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r - Phase 3, 7 production units. lots 13, 14, 17, & 31-34, for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000040 for all clearances PLAN 3AR1,2 lot #14 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(patio) Opt #1: 302 sq ft 4th car garage Opt #2 : 592 sq ft guest living quarters	5729 RANCHO DEL CABALLO	92003	5261	PARDEE HOMES
180	PDS2015-TPHSPM-000425	12/23/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: HWY 78 Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r - Phase 3, 7 production units. lots 13, 14, 17, & 31-34, for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000040 for all clearances PLAN 4B2 Lot #17 3846 sf SFD w/ac, fs 646 sf attached gar fin fs Porch 73 sf 158 sq ft portico 289 sq ft outdoor room(patio) Opt # 2 - Detached 592 sq ft guest living quarters	5713 RANCHO DEL CABALLO	92003	5473	PARDEE HOMES
181	PDS2015-TPHSPM-000426	12/23/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: HWY 78 Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r - Phase 3, 7 production units. lots 13, 14, 17, & 31-34, for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000040 for all clearances PLAN 3CR2, Lot #31 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(patio)	5706 RANCHO DEL CABALLO	92003	5261	PARDEE HOMES
182	PDS2015-TPHSPM-000427	12/23/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: HWY 78 Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r - Phase 3, 7 production units. lots 13, 14, 17, & 31-34, for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000040 for all clearances PLAN 2A2 Lot #32 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev A -25 sf, 198 sq ft outdoor room(patio) Opt # 2- detached 592 sq ft guest living quarters	5720 RANCHO DEL CABALLO	92003	4481	PARDEE HOMES

183	PDS2015-TPHSPM-000428	12/23/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: HWY 78 Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r - Phase 3, 7 production units. lots 13, 14, 17, & 31-34, for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000040 for all clearances PLAN 2CR lot #33 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev A -25 sf, B - 214 sf, C- 36 sf 198 sq ft outdoor room(kpatio)	5734 RANCHO DEL CABALLO	92003	3900	PARDEE HOMES
184	PDS2015-TPHSPM-000429	12/23/15	Completed	1019 - RES - Tract - Subsequent Phases	Cross street: HWY 78 Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r - Phase 3, 7 production units. lots 13, 14, 17, & 31-34, for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000040 for all clearances PLAN 3B Lot #34 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(patio)	5748 RANCHO DEL CABALLO	92003	4367	PARDEE HOMES
185	PDS2015-RESACC-000887	12/29/15	Issued	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: MORRIS HILL RD Foundation: SLAB Description of Work: 733 SF DETACHED BARN W/ COVERED STORAGE FOR (E) SFD	4848 OLIVE HILL RD	92028	733	FLAVIN JUSTINA M 1994 TRUST 03-31-94
186	PDS2016-MHPARK-000007	01/22/16	Issued	1120 - RES - M.H. Farm Employee Housing	Cross street: Hwy 395 State ID number: 37-16235-EH Facility name: RPG1002, LLC employee housing Description of Work: Infrastructure permit for creation of Ag Employee Housing under HSC section 17021.6 to include: 5 MH/RV spaces with 100amp/240 volt pedestals off existing 400 amp master meter for exiting sfd, 3 street lights, water and septic hook ups, 3 street lights and DG/asphalt road and 11 off street parking spaces.	1917 RAINBOW VALLEY BLVD	92028		R P G 1002 L L C

187	PDS2016-TPHSPC-000001	01/25/16	Completed	1018 - RES - Tract Models/Master Plan	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 5, 7 productions units lots 22-28 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-000001 for all clearances PLAN 1C Lot #23 2962 sf 2 story SFD w/ac, fs 629 sf attached gar fin fs Porches - Elev , B -175 sf, C-78 sf PLAN 2A Lot #24 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev A -25 sf, B - 214 sf, C- 36 sf 198 sq ft outdoor room(patio) PLAN 3B, B1, C1 Lot 22,26,28 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(patio) Opt #1 - 4th Car Garage 302 sf PLAN 4BR1, AR1 Lot #25, 27 3846 sf SFD w/ac, fs	5657 RANCHO DEL CABALLO	92003		PARDEE HOMES
188	PDS2016-CMASPC-000018	03/09/16	Open	3230 - COM - Hospitals, Resthome, Convalescent	Cross street: SOUTH MISSION ROAD Foundation: SLAB Description of Work: 19,567 SQFT 2-STORY ELDER CARE FACILITY "COUNTRY GARDENS II" TO INCLUDE BEDROOMS, BATHROOMS, CAFETERIA/DINING/KITCHEN, REC ROOM, T.V. ROOM, LOBBY, OFFICES, CARETAKER ROOM, STORAGE ROOMS, & SALON, ALSO, 1290 SQFT ATTACHED COVERED ENTRY, 1000 AMPS SERVICE, ELECTRICAL FOR GATE, PARKING LOT LIGHTING. SEE PDS2016-CMASPC-000018 FOR ALL CLEARANCES. 1) 19,567 SQFT ELDER CARE FACILITY 2) PARKING LOT LIGHTING	2805 OVERLAND TRL	92028	20857	
189	PDS2016-TPHSPM-000015	03/17/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 4, 7 production units, Lots 16, 18-21, 29-30 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000045 for all clearances PLAN 4B1,2 Lot #16 3846 sf SFD w/ac, fs 646 sf attached gar fin fs 158 sq ft portico Porch 73 sf 289 sq ft outdoor room(patio) Opt # 1 - 297 sf 1 Car garage Opt # 2 - Detached 592 sq ft guest living quarters	5817 VIA DEL CABALLERO	92003	5901	PARDEE HOMES

190	PDS2016-TPHSPM-000016	03/17/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 4, 7 production units, Lots 16, 18-21, 29-30 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000045 for all clearances PLAN 3CR Lot 18 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(patio)	5707 VIA DEL CABALLERO	92003	4367	PARDEE HOMES
191	PDS2016-TPHSPM-000017	03/17/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 4, 7 production units, Lots 16, 18-21, 29-30 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000045 for all clearances PLAN 2A2 Lot #19 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev A -25 sf, B - 214 sf, C- 36 sf 198 sq ft outdoor room(patio) Opt # 2 - detached 592 sq ft guest living quarters	5675 VIA DEL CABALLERO	92003	4481	PARDEE HOMES
192	PDS2016-TPHSPM-000018	03/17/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 4, 7 production units, Lots 16, 18-21, 29-30 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000045 for all clearances PLAN 3A 1 Lot #20 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(patio) Opt #1 - 4th Car Garage 302 sf	5811 VIA DEL CABALLERO	92003	4669	PARDEE HOMES
193	PDS2016-TPHSPM-000019	03/17/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 4, 7 production units, Lots 16, 18-21, 29-30 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000045 for all clearances PLAN 1B LOT #21 2962 sf 2 story SFD w/ac, fs 629 sf attached gar fin fs Porches - Elev , B -175 sf,	5805 VIA DEL CABALLERO	92003	2866	PARDEE HOMES

194	PDS2016-TPHSPM-000020	03/17/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 4, 7 production units, Lots 16, 18-21, 29-30 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000035 for all clearances PLAN 4 CR2 LOT #29 3846 sf SFD w/ac, fs 646 sf attached gar fin fs 158 sq ft portico Porch 73 sf 289 sq ft outdoor room(patio) Opt # 2 - Detached 592 sq ft guest living quarters	5676 RANCHO DEL CABALLO	92003	5613	PARDEE HOMES
195	PDS2016-TPHSPM-000021	03/17/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 4, 7 production units, Lots 16, 18-21, 29-30 for Pardee Homes "Olive Hill Estates" See PDS2015-TPHSPC-000045 for all clearances PLAN 2B2 Lot #30 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev A -25 sf, B - 214 sf, C- 36 sf 198 sq ft outdoor room(patio) Opt # 2 - detached 592 sq ft guest living quarters	5690 RANCHO DEL CABALLO	92003	4631	PARDEE HOMES
196	PDS2016-RESACC-000174	03/25/16	Issued	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Rainbow Valley Blvd Foundation: SLAB Description of Work: 2100 sqft steel AG bldg. for (e) SFD	903 CANYON HEIGHTS RD	92028	2100	MANERI JOHNNY A&MARIA G
197	PDS2016-COMACC-000037	04/08/16	Open	3250 - COM - Public Works Bldgs (Utilities, Water)	Cross street: MISSION RD. Foundation: SLAB Description of Work: 5225 sq ft fire station w/ac, as follows: 3435 sq ft fire station and 1790 sq ft sleeping quarters with attached 3611 sq ft apparatus bay w/fs. 100 sq ft detached storage building w/electrical. Concrete hose drying rack (concrete on the ground) Trash enclosure 198 sq ft cmu enclosure with 294 sq ft metal canopy. Fuel storage tank (500 gal) enclosure 186 sq ft cmu wall with 217 sq ft metal canopy. Transformer enclosure 246 sq ft cmu wall. Generator (to be done by other) and propane tank enclosure 348 sq ft cmu wall. 40' flag pole, monument sign (externally illuminated from top) 466 lineal ft cmu perimeter wall 40' flag pole and monument sign Replacement of PDS2012-1017-20120154	5906 OLIVE HILL RD	92003		NORTH COUNTY FIRE PROTECTION DISTRICT

198	PDS2016-TPHSPM-000027	05/02/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 5, 7 productions units lots 22-28 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-000001 for all clearances PLAN 3B1, ,28 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(patio) Opt #1 - 4th Car Garage 302 sf	5662 RANCHO DEL CABALLO	92003	4667	PARDEE HOMES
199	PDS2016-TPHSPM-000028	05/02/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 5, 7 productions units lots 22-28 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-000001 for all clearances PLAN 4AR1 Lot # 27 3846 sf SFD w/ac, fs 646 sf attached gar fin fs 158 sq ft portico Porch 73 sf 289 sq ft outdoor room(patio) Opt #1 - 302 sq ft 4th car garage	5648 RANCHO DEL CABALLO	92003	5309	PARDEE HOMES
200	PDS2016-TPHSPM-000029	05/02/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 5, 7 productions units lots 22-28 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-000001 for all clearances PLAN 3C1, Lot 26 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(patio) Opt #1 - 4th Car Garage 302 sf	5634 RANCHO DEL CABALLO	92003	4669	PARDEE HOMES
201	PDS2016-TPHSPM-000030	05/02/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 5, 7 productions units lots 22-28 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-000001 for all clearances PLAN 4BR1, Lot #25 3846 sf SFD w/ac, fs 646 sf attached gar fin fs 158 sq ft portico Porch 73 sf 289 sq ft outdoor room(patio) Opt #1 - 302 sq ft 4th car garage	5620 RANCHO DEL CABALLO	92003	5309	PARDEE HOMES

202	PDS2016-TPHSPM-000031	05/02/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 5, 7 productions units lots 22-28 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-000001 for all clearances PLAN 2A Lot #24 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev A -25 sf, 198 sq ft outdoor room(patio)	5606 RANCHO DEL CABALLO	92003	3889	PARDEE HOMES
203	PDS2016-TPHSPM-000032	05/02/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 5, 7 productions units lots 22-28 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-000001 for all clearances PLAN 1C Lot #23 2962 sf 2 story SFD w/ac, fs 629 sf attached gar fin fs Porches - Elev , C-78 sf	5635 RANCHO DEL CABALLO	92003	3669	PARDEE HOMES
204	PDS2016-TPHSPM-000033	05/02/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r Phase 5, 7 productions units lots 22-28 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-000001 for all clearances PLAN 3B Lot 22, 3420 sf SFD w/ac, fs 662 sf attached gar fin fs Porches - Elev A - C - 108 sf 177 sq ft outdoor room(patio)	5657 RANCHO DEL CABALLO	92003	4367	PARDEE HOMES
205	PDS2016-TPHSPM-000044	05/17/16	Issued	1018 - RES - Tract Models/Master Plan	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r PHASE 6(BUILDOUT) 3 PRODUCTION UNITS LOTS 1,8-9 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-00002 for all clearances PLAN 4A Lot 1 3846 sf SFD w/ac, fs 646 sf attached gar fin fs 158 sq ft portico Porch 73 sf 289 sq ft outdoor room(patio)	5895 RANCHO DEL CABALLO	92003	5309	PARDEE HOMES

206	PDS2016-TPHSPM-000045	05/17/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r PHASE 6(BUILDOUT) 3 PRODUCTION UNITS LOTS 1,8-9 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-00002 for all clearances PLAN 1C Lot 8 2962 sf 2 story SFD w/ac, fs 629 sf attached gar fin fs Porches - Elev , , C-78 sf	5878 RANCHO DEL CABALLO	92003	3667	PARDEE HOMES
207	PDS2016-TPHSPM-000046	05/17/16	Issued	1019 - RES - Tract - Subsequent Phases	Cross street: S. Mission Rd Description of Work: Master Plan for Map 16019 tm 4976-rpl-4r PHASE 6(BUILDOUT) 3 PRODUCTION UNITS LOTS 1,8-9 for Pardee Homes "Olive Hill Estates" See PDS2016-TPHSPC-00002 for all clearances PLAN 2CR Lot 9 3018 sf SFD w/ac, fs 648 sf attached gar fin fs Porches - Elev C- 36 sf 198 sq ft outdoor room(patio)	5856 RANCHO DEL CABALLO	92003	3900	PARDEE HOMES
208	PDS2016-CMASPC-000034	05/23/16	Open	3280 - COM - Ag. Bldg Or Animal Hospital	Cross street: Fallen Leaf Foundation: SLAB Description of Work: Winery storage building and restrooms and Farm Employee housing w/garage for The Vineyard @ 1924 Building 1- Fico - 2590 sq ft steel ag storage and winery (not enclosed). Building 2 - 1226 sq ft FEH with ac, fs (using some walls of existing as built barn by adding exterior walls around existing exterior walls old barn) and 680 sq ft attached garage. (existing illegal 2 story barn with 2nd story feh being removed new FEH is using existing foundation) The Vineyard @ 1924	1924 E MISSION RD	92028	4643	CARSON HOWARD TR
209	PDS2016-RESACC-000361	06/01/16	Issued	3281 - RES - Ag. Bldg, Barn Or Accessory Strct.	Cross street: Vin de la Roma Foundation: SLAB Description of Work: 2400 sq. ft. detached barn (no electrical) 6-16-16: STRUCTURE WAS A 2400 SF BARN (NO ELECT) VS 3000 SF DET GARAGE/STORAGE AND REDUCED CURB WITH. SEE COMMENTS. CDC	40789 VIA DE LA ROCA	92028	2400	OHST ALAN P LIVING TRUST 03-15-05

Table E-1

Other Development Trip Generation

ID	Record ID	Land Use	Quantity	Units[2]	Trip Generation Rates & Trips Generated						
					Morning Peak Hour			Evening Peak Hour			
					In	Out	Total	In	Out	Total	Daily
153	PDS2015-CMASPC-000026	Fast Food Restaurant (Without Drive Through)	0.934	TSF	20	13	33	23	23	46	654
155	PDS2015-CMASPC-000028	Church/Synagogue	23.725	TSF	6	5	11	12	11	23	214
168	PDS2015-COMPRI-000051	Specialty Retail	1.726	TSF	1	1	2	3	3	6	69
188	PDS2016-CMASPC-000018	Congregate Care Facility	20	DU	14	10	24	36	36	72	800
189	PDS20136-TPHSPM-000015	Estate Residential	37	DU	11	25	36	31	13	44	444
Total Trip Generated By Other Developments					52	54	106	105	86	191	2,181

[1] Source: San Diego Association of Governments (SANDAG), Traffic Generators, April 2002.

[2] TSF = Thousand Square Feet; DU = Dwelling Units

APPENDIX F

Future Intersection Delay and Level of Service Worksheets

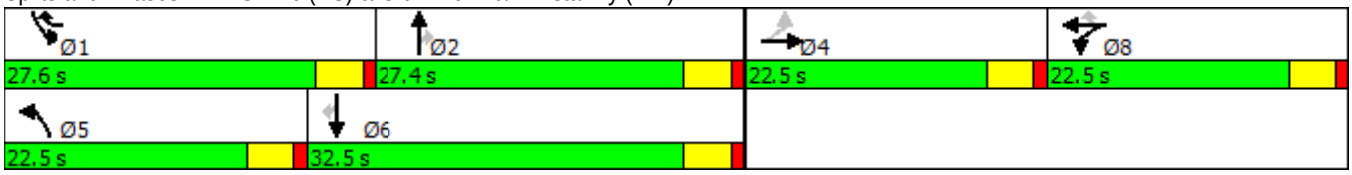
Existing Plus Project

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	53	61	235	15	443	17	665	281	508	1461	15
Future Volume (vph)	4	53	61	235	15	443	17	665	281	508	1461	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	8
Storage Length (ft)	0		0	273		0	833		540	382		100
Storage Lanes	0		0	1		1	1		1	2		1
Taper Length (ft)	25			25			25			120		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt		0.922				0.850			0.850			0.850
Flt Protected		0.998		0.950	0.958		0.950			0.950		
Satd. Flow (prot)	0	3257	0	1681	1695	1583	1770	5085	1583	3433	5085	1372
Flt Permitted		0.628		0.950	0.958		0.950			0.950		
Satd. Flow (perm)	0	2049	0	1681	1695	1583	1770	5085	1583	3433	5085	1372
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64				461			293			115
Link Speed (mph)		50			30			30			30	
Link Distance (ft)		948			495			1112			1560	
Travel Time (s)		12.9			11.3			25.3			35.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	4	55	64	245	16	461	18	693	293	529	1522	16
Shared Lane Traffic (%)				47%								
Lane Group Flow (vph)	0	123	0	130	131	461	18	693	293	529	1522	16
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	8	1	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4					8			2			6
Detector Phase	4	4		8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5	27.6	22.5	27.4	27.4	27.6	32.5	32.5
Total Split (%)	22.5%	22.5%		22.5%	22.5%	27.6%	22.5%	27.4%	27.4%	27.6%	32.5%	32.5%
Maximum Green (s)	18.0	18.0		18.0	18.0	23.1	18.0	22.9	22.9	23.1	28.0	28.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		7.7		11.5	11.5	34.3	6.5	23.6	23.6	18.1	42.2	42.2
Actuated g/C Ratio		0.10		0.15	0.15	0.45	0.08	0.31	0.31	0.24	0.55	0.55
v/c Ratio		0.47		0.52	0.51	0.48	0.12	0.44	0.42	0.65	0.54	0.02
Control Delay		25.9		39.9	39.8	3.2	39.0	24.8	5.7	31.8	15.0	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.9		39.9	39.8	3.2	39.0	24.8	5.7	31.8	15.0	0.1
LOS		C		D	D	A	D	C	A	C	B	A
Approach Delay		25.9			16.5			19.5			19.2	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 76.7			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 19.0		Intersection LOS: B	
Intersection Capacity Utilization 57.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)



HCM 2010 Signalized Intersection Summary
1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	53	61	235	15	443	17	665	281	508	1461	15
Future Volume (veh/h)	4	53	61	235	15	443	17	665	281	508	1461	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1788
Adj Flow Rate, veh/h	4	55	64	256	0	461	18	693	293	529	1522	16
Adj No. of Lanes	0	2	0	2	0	1	1	3	1	2	3	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	8	112	103	807	0	662	112	1472	458	656	2120	634
Arrive On Green	0.06	0.06	0.06	0.23	0.00	0.23	0.06	0.29	0.29	0.19	0.42	0.42
Sat Flow, veh/h	126	1731	1583	3548	0	1583	1774	5085	1583	3442	5085	1520
Grp Volume(v), veh/h	59	0	64	256	0	461	18	693	293	529	1522	16
Grp Sat Flow(s),veh/h/ln	1856	0	1583	1774	0	1583	1774	1695	1583	1721	1695	1520
Q Serve(g_s), s	2.4	0.0	3.1	4.8	0.0	18.0	0.8	8.9	12.8	11.6	19.7	0.5
Cycle Q Clear(g_c), s	2.4	0.0	3.1	4.8	0.0	18.0	0.8	8.9	12.8	11.6	19.7	0.5
Prop In Lane	0.07		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	0	103	807	0	662	112	1472	458	656	2120	634
V/C Ratio(X)	0.49	0.00	0.62	0.32	0.00	0.70	0.16	0.47	0.64	0.81	0.72	0.03
Avail Cap(c_a), veh/h	422	0	360	807	0	662	404	1472	458	1005	2120	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	0.0	36.0	25.4	0.0	18.9	35.1	23.1	24.5	30.6	19.2	13.6
Incr Delay (d2), s/veh	3.1	0.0	6.0	0.2	0.0	3.2	0.7	1.1	6.7	2.9	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	1.5	2.3	0.0	8.8	0.4	4.3	6.4	5.8	9.6	0.2
LnGrp Delay(d),s/veh	38.8	0.0	42.1	25.7	0.0	22.1	35.7	24.2	31.2	33.5	21.3	13.7
LnGrp LOS	D		D	C		C	D	C	C	C	C	B
Approach Vol, veh/h		123			717			1004			2067	
Approach Delay, s/veh		40.5			23.4			26.4			24.4	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.6	27.4		9.6	9.5	37.5		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	23.1	22.9		18.0	18.0	28.0		18.0
Max Q Clear Time (g_c+I1), s	13.6	14.8		5.1	2.8	21.7		20.0
Green Ext Time (p_c), s	1.4	7.2		0.4	0.0	5.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	179	122	139	973	1862	211
Future Volume (vph)	179	122	139	973	1862	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	84	0	756			755
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		133				229
Link Speed (mph)	30			30	30	
Link Distance (ft)	1509			1887	2556	
Travel Time (s)	34.3			42.9	58.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	195	133	151	1058	2024	229
Shared Lane Traffic (%)						
Lane Group Flow (vph)	195	133	151	1058	2024	229
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	42.5	42.5	9.5	9.5	30.5	30.5
Total Split (s)	42.5	42.5	14.0	77.5	63.5	63.5
Total Split (%)	35.4%	35.4%	11.7%	64.6%	52.9%	52.9%
Maximum Green (s)	38.0	38.0	9.5	73.0	59.0	59.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	31.0	31.0			19.0	19.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	15.9	15.9	9.5	73.1	59.1	59.1
Actuated g/C Ratio	0.16	0.16	0.10	0.75	0.60	0.60
v/c Ratio	0.68	0.36	0.88	0.40	0.95	0.22
Control Delay	50.8	9.1	89.7	5.5	30.4	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	9.1	89.7	5.5	30.4	1.9
LOS	D	A	F	A	C	A
Approach Delay	33.9			16.0	27.5	
Approach LOS	C			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 98.1			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 24.4		Intersection LOS: C	
Intersection Capacity Utilization 80.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: SR-76 (NS) & North River Rd (EW)

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	179	122	139	973	1862	211
Future Volume (veh/h)	179	122	139	973	1862	211
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	195	133	151	1058	2024	229
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	245	219	177	2716	2195	982
Arrive On Green	0.14	0.14	0.10	0.77	0.62	0.62
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	195	133	151	1058	2024	229
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	10.1	7.5	8.0	9.4	48.3	6.1
Cycle Q Clear(g_c), s	10.1	7.5	8.0	9.4	48.3	6.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	245	219	177	2716	2195	982
V/C Ratio(X)	0.80	0.61	0.85	0.39	0.92	0.23
Avail Cap(c_a), veh/h	709	632	177	2716	2195	982
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	38.6	42.1	3.7	16.0	8.0
Incr Delay (d2), s/veh	5.8	2.7	30.8	0.4	7.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	6.7	5.4	4.7	25.7	2.8
LnGrp Delay(d),s/veh	45.6	41.3	72.9	4.1	23.9	8.6
LnGrp LOS	D	D	E	A	C	A
Approach Vol, veh/h	328			1209	2253	
Approach Delay, s/veh	43.8			12.7	22.4	
Approach LOS	D			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		77.5		17.6	14.0	63.5		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		73.0		38.0	9.5	59.0		
Max Q Clear Time (g_c+I1), s		11.4		12.1	10.0	50.3		
Green Ext Time (p_c), s		52.2		1.0	0.0	8.5		

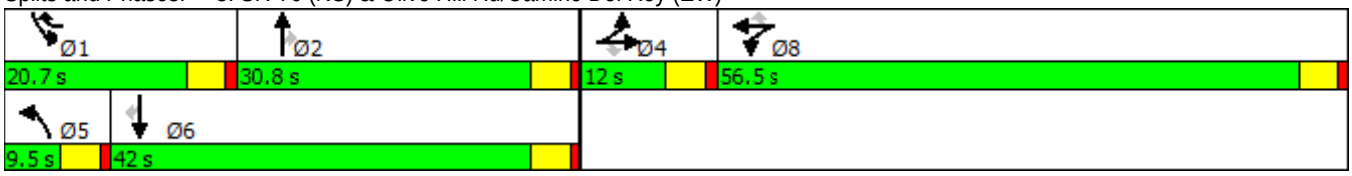
Intersection Summary	
HCM 2010 Ctrl Delay	21.1
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	156	185	159	67	241	73	937	141	414	1729	45
Future Volume (vph)	103	156	185	159	67	241	73	937	141	414	1729	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		219	190		227	834		478	600		476
Storage Lanes	2		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			55			148			95
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		480			1346			1011			2331	
Travel Time (s)		6.5			18.4			23.0			53.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	108	164	195	167	71	254	77	986	148	436	1820	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	164	195	167	71	254	77	986	148	436	1820	47
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases			4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	9.5	56.5	56.5	9.5	9.5	9.5	9.5	9.5	39.5	39.5
Total Split (s)	12.0	12.0	12.0	56.5	56.5	20.7	9.5	30.8	30.8	20.7	42.0	42.0
Total Split (%)	10.0%	10.0%	10.0%	47.1%	47.1%	17.3%	7.9%	25.7%	25.7%	17.3%	35.0%	35.0%
Maximum Green (s)	7.5	7.5	7.5	52.0	52.0	16.2	5.0	26.3	26.3	16.2	37.5	37.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)				7.0	7.0						7.0	7.0
Flash Dont Walk (s)				45.0	45.0						28.0	28.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)	7.5	7.5	7.5	12.8	12.8	32.9	5.0	26.9	26.9	15.6	37.6	37.6
Actuated g/C Ratio	0.09	0.09	0.09	0.16	0.16	0.41	0.06	0.33	0.33	0.19	0.46	0.46
v/c Ratio	0.34	0.95	0.60	0.60	0.24	0.38	0.71	0.58	0.24	0.66	0.77	0.06
Control Delay	38.5	97.6	14.5	40.8	31.4	14.3	72.9	24.6	5.1	35.9	21.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	97.6	14.5	40.8	31.4	14.3	72.9	24.6	5.1	35.9	21.3	0.6
LOS	D	F	B	D	C	B	E	C	A	D	C	A
Approach Delay		49.3			25.8			25.3			23.6	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 80.9			
Natural Cycle: 135			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 27.0		Intersection LOS: C	
Intersection Capacity Utilization 69.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)



HCM 2010 Signalized Intersection Summary
3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	156	185	159	67	241	73	937	141	414	1729	45
Future Volume (veh/h)	103	156	185	159	67	241	73	937	141	414	1729	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	108	164	195	167	71	254	77	986	148	436	1820	47
Adj No. of Lanes	2	1	1	1	1	1	1	3	1	2	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	171	145	307	322	520	99	1828	569	534	2335	727
Arrive On Green	0.09	0.09	0.09	0.17	0.17	0.17	0.06	0.36	0.36	0.16	0.46	0.46
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	1774	5085	1583	3442	5085	1583
Grp Volume(v), veh/h	108	164	195	167	71	254	77	986	148	436	1820	47
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1774	1695	1583	1721	1695	1583
Q Serve(g_s), s	2.4	7.2	7.5	7.0	2.7	10.5	3.5	12.6	5.4	10.0	24.6	1.4
Cycle Q Clear(g_c), s	2.4	7.2	7.5	7.0	2.7	10.5	3.5	12.6	5.4	10.0	24.6	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	316	171	145	307	322	520	99	1828	569	534	2335	727
V/C Ratio(X)	0.34	0.96	1.34	0.54	0.22	0.49	0.78	0.54	0.26	0.82	0.78	0.06
Avail Cap(c_a), veh/h	316	171	145	1130	1186	1254	109	1828	569	683	2335	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	36.9	37.1	30.8	29.0	21.9	38.1	20.8	18.5	33.4	18.6	12.3
Incr Delay (d2), s/veh	0.6	56.5	192.4	1.5	0.3	0.7	27.6	1.1	1.1	6.0	2.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	6.3	11.0	3.6	1.4	4.7	2.5	6.0	2.5	5.2	12.0	0.6
LnGrp Delay(d),s/veh	35.4	93.5	229.4	32.3	29.4	22.7	65.7	21.9	19.6	39.4	21.3	12.5
LnGrp LOS	D	F	F	C	C	C	E	C	B	D	C	B
Approach Vol, veh/h		467			492			1211			2303	
Approach Delay, s/veh		136.8			26.9			24.4			24.5	
Approach LOS		F			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.2	33.9		12.0	9.0	42.0		18.6
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	16.2	26.3		7.5	5.0	37.5		52.0
Max Q Clear Time (g_c+I1), s	12.0	14.6		9.5	5.5	26.6		12.5
Green Ext Time (p_c), s	0.7	10.9		0.0	0.0	10.2		1.6

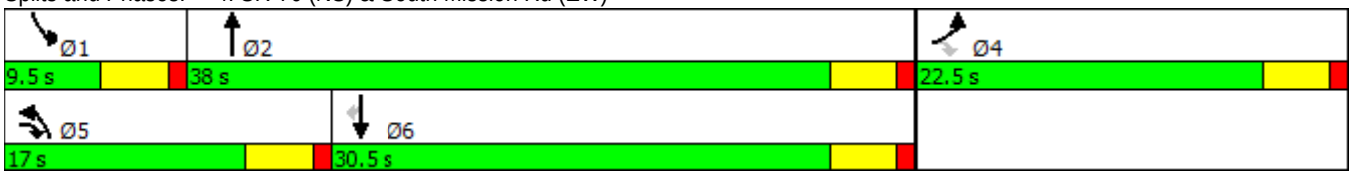
Intersection Summary	
HCM 2010 Ctrl Delay	36.5
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	0	1146	0	0	0	507	759	0	5	1098	40
Future Volume (vph)	69	0	1146	0	0	0	507	759	0	5	1098	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		0	439		0	495		0
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25			25			120			25		
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850									0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3433	0	2787	0	0	0	3433	3539	0	1770	3539	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	0	2787	0	0	0	3433	3539	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			31									164
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			263			2331			1378	
Travel Time (s)		19.9			6.0			53.0			31.3	
Peak Hour Factor	0.98	0.92	0.98	0.92	0.92	0.92	0.98	0.98	0.92	0.92	0.98	0.98
Adj. Flow (vph)	70	0	1169	0	0	0	517	774	0	5	1120	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	70	0	1169	0	0	0	517	774	0	5	1120	41
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1		1				1	2		1	2	1
Detector Template	Left		Right				Left	Thru		Left	Thru	Right
Leading Detector (ft)	20		20				20	100		20	100	20
Trailing Detector (ft)	0		0				0	0		0	0	0
Detector 1 Position(ft)	0		0				0	0		0	0	0
Detector 1 Size(ft)	20		20				20	6		20	6	20
Detector 1 Type	Cl+Ex		Cl+Ex				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot		pm+ov				Prot	NA		Prot	NA	Perm
Protected Phases	4		5				5	2		1	6	
Permitted Phases			4									6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4		5				5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0		5.0				5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		9.5				9.5	22.5		9.5	22.5	22.5
Total Split (s)	22.5		17.0				17.0	38.0		9.5	30.5	30.5
Total Split (%)	32.1%		24.3%				24.3%	54.3%		13.6%	43.6%	43.6%
Maximum Green (s)	18.0		12.5				12.5	33.5		5.0	26.0	26.0
Yellow Time (s)	3.5		3.5				3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0				1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5				4.5	4.5		4.5	4.5	4.5
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0		3.0	3.0	3.0
Recall Mode	None		None				None	Max		None	Max	Max
Walk Time (s)	7.0							7.0			7.0	7.0
Flash Dont Walk (s)	11.0							11.0			11.0	11.0
Pedestrian Calls (#/hr)	0							0			0	0
Act Effct Green (s)	6.6		19.1				12.6	43.8		5.1	26.3	26.3
Actuated g/C Ratio	0.12		0.35				0.23	0.80		0.09	0.48	0.48
v/c Ratio	0.17		1.17				0.65	0.27		0.03	0.66	0.05
Control Delay	24.0		108.2				24.9	3.7		25.6	14.2	0.1
Queue Delay	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Delay	24.0		108.2				24.9	3.7		25.6	14.2	0.1
LOS	C		F				C	A		C	B	A
Approach Delay		103.5						12.2			13.7	
Approach LOS		F						B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 54.5			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 43.3		Intersection LOS: D	
Intersection Capacity Utilization 77.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 4: SR-76 (NS) & South Mission Rd (EW)



HCM 2010 Signalized Intersection Summary
4: SR-76 (NS) & South Mission Rd (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	0	1146	0	0	0	507	759	0	5	1098	40
Future Volume (veh/h)	69	0	1146	0	0	0	507	759	0	5	1098	40
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	70	0	1169				517	774	0	5	1120	41
Adj No. of Lanes	2	0	2				2	2	0	1	2	1
Peak Hour Factor	0.98	0.92	0.98				0.98	0.98	0.92	0.92	0.98	0.98
Percent Heavy Veh, %	2	0	2				2	2	0	2	2	2
Cap, veh/h	888	0	1209				604	1917	0	12	1319	590
Arrive On Green	0.26	0.00	0.26				0.18	0.54	0.00	0.01	0.37	0.37
Sat Flow, veh/h	3442	0	2787				3442	3632	0	1774	3539	1583
Grp Volume(v), veh/h	70	0	1169				517	774	0	5	1120	41
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1721	1770	0	1774	1770	1583
Q Serve(g_s), s	1.1	0.0	18.0				10.2	8.9	0.0	0.2	20.3	1.2
Cycle Q Clear(g_c), s	1.1	0.0	18.0				10.2	8.9	0.0	0.2	20.3	1.2
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	888	0	1209				604	1917	0	12	1319	590
V/C Ratio(X)	0.08	0.00	0.97				0.86	0.40	0.00	0.43	0.85	0.07
Avail Cap(c_a), veh/h	888	0	1209				617	1917	0	127	1319	590
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.6	0.0	19.3				27.9	9.4	0.0	34.5	20.1	14.1
Incr Delay (d2), s/veh	0.0	0.0	18.5				11.2	0.6	0.0	22.6	7.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	20.7				5.8	4.5	0.0	0.2	11.1	0.5
LnGrp Delay(d),s/veh	19.6	0.0	37.8				39.1	10.0	0.0	57.1	27.0	14.3
LnGrp LOS	B		D				D	B		E	C	B
Approach Vol, veh/h		1239						1291			1166	
Approach Delay, s/veh		36.8						21.7			26.7	
Approach LOS		D						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	5.0	42.3		22.5	16.7	30.5		
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s	5.0	33.5		18.0	12.5	26.0		
Max Q Clear Time (g_c+I1), s	2.2	10.9		20.0	12.2	22.3		
Green Ext Time (p_c), s	0.0	14.8		0.0	0.1	3.2		

Intersection Summary	
HCM 2010 Ctrl Delay	28.3
HCM 2010 LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	509	202	0	358	109	0
Future Volume (vph)	509	202	0	358	109	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962					
Flt Protected					0.950	
Satd. Flow (prot)	1792	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1792	0	0	1863	1770	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	1346			174	267	
Travel Time (s)	18.4			2.4	6.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	541	215	0	381	116	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	756	0	0	381	116	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	509	202	0	358	109	0
Future Vol, veh/h	509	202	0	358	109	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	541	215	0	381	116	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	756	0	1030	649
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	381	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	855	-	259	470
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	855	-	259	470
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	691	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	29.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	259	-	-	855	-
HCM Lane V/C Ratio	0.448	-	-	-	-
HCM Control Delay (s)	29.7	-	-	0	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	2.2	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	509	0	124	358	0	40
Future Volume (vph)	509	0	124	358	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.987		
Satd. Flow (prot)	1863	0	0	1839	1611	0
Flt Permitted				0.987		
Satd. Flow (perm)	1863	0	0	1839	1611	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	174			723	234	
Travel Time (s)	2.4			9.9	5.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	541	0	132	381	0	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	541	0	0	513	43	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.8%		ICU Level of Service C	
Analysis Period (min) 15			

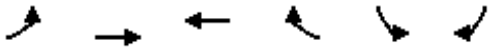
Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	509	0	124	358	0	40
Future Vol, veh/h	509	0	124	358	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	541	0	132	381	0	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	541	0	1186	541
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	645	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1028	-	208	541
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1028	-	174	541
Mov Cap-2 Maneuver	-	-	-	-	174	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	437	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	541	-	-	1028	-
HCM Lane V/C Ratio	0.079	-	-	0.128	-
HCM Control Delay (s)	12.2	-	-	9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.4	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	119	430	346	3	5	136
Future Volume (vph)	119	430	346	3	5	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	68
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected		0.989			0.950	
Satd. Flow (prot)	0	1842	1863	1583	1770	1583
Flt Permitted		0.989			0.950	
Satd. Flow (perm)	0	1842	1863	1583	1770	1583
Link Speed (mph)		50	50		45	
Link Distance (ft)		951	613		780	
Travel Time (s)		13.0	8.4		11.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	134	483	389	3	6	153
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	617	389	3	6	153
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

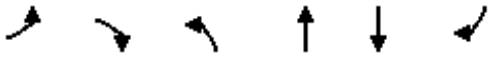
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	119	430	346	3	5	136
Future Vol, veh/h	119	430	346	3	5	136
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	0	68
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	134	483	389	3	6	153

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	389	0	-	0	1140	389
Stage 1	-	-	-	-	389	-
Stage 2	-	-	-	-	751	-
Critical Hdwy	4.12	-	-	-	7.12	6.22
Critical Hdwy Stg 1	-	-	-	-	6.12	-
Critical Hdwy Stg 2	-	-	-	-	6.12	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1170	-	-	-	178	659
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	403	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1170	-	-	-	157	659
Mov Cap-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	340	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1170	-	-	-	157	659
HCM Lane V/C Ratio	0.114	-	-	-	0.036	0.232
HCM Control Delay (s)	8.5	0	-	-	28.8	12.1
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	0.9



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	20	9	848	1121	30
Future Volume (vph)	65	20	9	848	1121	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	550			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.997	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1857	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1857	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1025			6793	3274	
Travel Time (s)	23.3			154.4	74.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	68	21	9	883	1168	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	21	9	883	1199	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	9.5

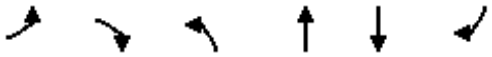
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	20	9	848	1121	30
Future Vol, veh/h	65	20	9	848	1121	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	550	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	21	9	883	1168	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2085	1183	1199	0	-	0
Stage 1	1183	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 58	231	582	-	-	-
Stage 1	291	-	-	-	-	-
Stage 2	396	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 57	231	582	-	-	-
Mov Cap-2 Maneuver	~ 57	-	-	-	-	-
Stage 1	291	-	-	-	-	-
Stage 2	390	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	233.8	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	582	-	57	231	-	-
HCM Lane V/C Ratio	0.016	-	1.188	0.09	-	-
HCM Control Delay (s)	11.3	-	299	22.1	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0	-	5.8	0.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	36	14	97	191	11
Future Volume (vph)	18	36	14	97	191	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.992	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1848	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1848	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	531			4215	454	
Travel Time (s)	12.1			95.8	10.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	20	41	16	110	217	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	41	16	110	230	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane					Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.6%		ICU Level of Service A	
Analysis Period (min) 15			

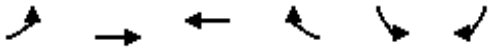
Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	36	14	97	191	11
Future Vol, veh/h	18	36	14	97	191	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	41	16	110	217	13

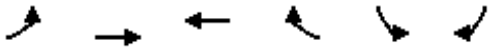
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	365	223	230	0	-	0
Stage 1	223	-	-	-	-	-
Stage 2	142	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	635	817	1338	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	627	817	1338	-	-	-
Mov Cap-2 Maneuver	729	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	874	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1338	-	729	817	-	-
HCM Lane V/C Ratio	0.012	-	0.028	0.05	-	-
HCM Control Delay (s)	7.7	-	10.1	9.6	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.2	-	-



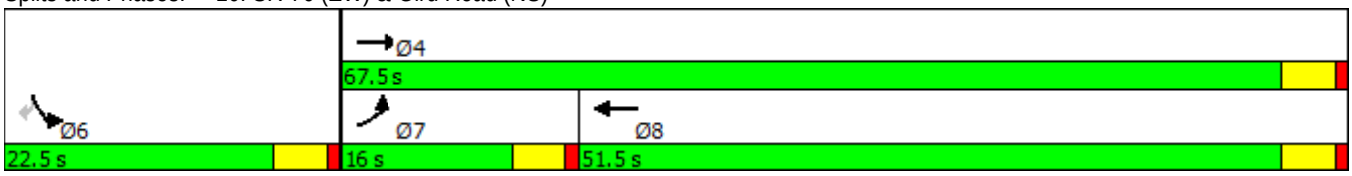
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	245	650	928	75	74	218
Future Volume (vph)	245	650	928	75	74	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	490			0	0	228
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.990			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1844	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1844	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			7			232
Link Speed (mph)		30	30		50	
Link Distance (ft)		3274	12216		4215	
Travel Time (s)		74.4	277.6		57.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	261	691	987	80	79	232
Shared Lane Traffic (%)						
Lane Group Flow (vph)	261	691	1067	0	79	232
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6

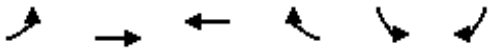


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	22.5	22.5		22.5	22.5
Total Split (s)	16.0	67.5	51.5		22.5	22.5
Total Split (%)	17.8%	75.0%	57.2%		25.0%	25.0%
Maximum Green (s)	11.5	63.0	47.0		18.0	18.0
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	Max	Max		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	11.5	63.1	47.1		9.0	9.0
Actuated g/C Ratio	0.14	0.78	0.58		0.11	0.11
v/c Ratio	1.04	0.48	1.00		0.40	0.61
Control Delay	105.6	4.8	45.7		39.5	12.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	105.6	4.8	45.7		39.5	12.2
LOS	F	A	D		D	B
Approach Delay		32.4	45.7		19.2	
Approach LOS		C	D		B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 81.1			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 36.7		Intersection LOS: D	
Intersection Capacity Utilization 82.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 10: SR-76 (EW) & Gird Road (NS)

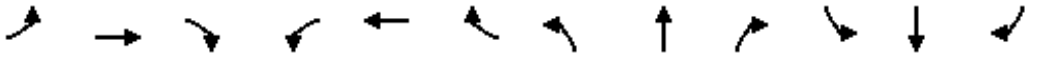




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	245	650	928	75	74	218
Future Volume (veh/h)	245	650	928	75	74	218
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	261	691	987	80	79	232
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	235	1354	922	75	301	268
Arrive On Green	0.13	0.73	0.54	0.54	0.17	0.17
Sat Flow, veh/h	1774	1863	1701	138	1774	1583
Grp Volume(v), veh/h	261	691	0	1067	79	232
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1838	1774	1583
Q Serve(g_s), s	11.5	14.0	0.0	47.0	3.4	12.4
Cycle Q Clear(g_c), s	11.5	14.0	0.0	47.0	3.4	12.4
Prop In Lane	1.00			0.07	1.00	1.00
Lane Grp Cap(c), veh/h	235	1354	0	997	301	268
V/C Ratio(X)	1.11	0.51	0.00	1.07	0.26	0.86
Avail Cap(c_a), veh/h	235	1354	0	997	368	329
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	5.1	0.0	19.8	31.3	35.0
Incr Delay (d2), s/veh	91.0	1.4	0.0	49.4	0.5	17.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.5	7.6	0.0	37.2	1.7	11.5
LnGrp Delay(d),s/veh	128.6	6.5	0.0	69.2	31.8	52.9
LnGrp LOS	F	A		F	C	D
Approach Vol, veh/h		952	1067		311	
Approach Delay, s/veh		40.0	69.2		47.5	
Approach LOS		D	E		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				67.5		19.2	16.0	51.5
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				63.0		18.0	11.5	47.0
Max Q Clear Time (g_c+I1), s				16.0		14.4	13.5	49.0
Green Ext Time (p_c), s				23.1		0.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	54.4
HCM 2010 LOS	D



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	586	94	71	823	73	86	69	46	138	163	82
Future Volume (vph)	46	586	94	71	823	73	86	69	46	138	163	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	503		0	275		0	0		194	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.979			0.988			0.996	0.850		0.971	
Flt Protected	0.950			0.950				0.974			0.982	
Satd. Flow (prot)	1770	3465	0	1770	3497	0	0	1717	1504	0	1776	0
Flt Permitted	0.950			0.950				0.657			0.806	
Satd. Flow (perm)	1770	3465	0	1770	3497	0	0	1158	1504	0	1458	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			10			3	73		24	
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		12216			518			1079			789	
Travel Time (s)		151.4			6.4			24.5			17.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	49	623	100	76	876	78	91	73	49	147	173	87
Shared Lane Traffic (%)									10%			
Lane Group Flow (vph)	49	723	0	76	954	0	0	169	44	0	407	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		53.5	53.5	53.5	42.5	42.5	
Total Split (s)	9.5	26.7		9.8	27.0		53.5	53.5	53.5	53.5	53.5	
Total Split (%)	10.6%	29.7%		10.9%	30.0%		59.4%	59.4%	59.4%	59.4%	59.4%	
Maximum Green (s)	5.0	22.2		5.3	22.5		49.0	49.0	49.0	49.0	49.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5	4.5		4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		None	Max		None	None	None	None	None	
Walk Time (s)		7.0					7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0					42.0	42.0	42.0	31.0	31.0	
Pedestrian Calls (#/hr)		0					0	0	0	0	0	
Act Effct Green (s)	5.2	23.0		5.5	25.2			21.1	21.1		21.1	
Actuated g/C Ratio	0.09	0.38		0.09	0.41			0.35	0.35		0.35	
v/c Ratio	0.33	0.55		0.48	0.66			0.42	0.08		0.78	
Control Delay	36.5	18.8		42.4	20.5			18.3	1.8		28.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	36.5	18.8		42.4	20.5			18.3	1.8		28.0	
LOS	D	B		D	C			B	A		C	
Approach Delay		19.9			22.1			14.9			28.0	
Approach LOS		B			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 60.8			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 21.8		Intersection LOS: C	
Intersection Capacity Utilization 68.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 11: Old Highway 395 (NS) & SR-76 (EW)

HCM 2010 Signalized Intersection Summary
11: Old Highway 395 (NS) & SR-76 (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	586	94	71	823	73	86	69	46	138	163	82
Future Volume (veh/h)	46	586	94	71	823	73	86	69	46	138	163	82
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	49	623	100	76	876	78	91	73	49	147	173	87
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	1077	173	104	1200	107	311	225	594	235	252	111
Arrive On Green	0.05	0.35	0.35	0.06	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1774	3056	490	1774	3288	293	591	601	1583	420	672	297
Grp Volume(v), veh/h	49	360	363	76	471	483	164	0	49	407	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1776	1774	1770	1811	1192	0	1583	1389	0	0
Q Serve(g_s), s	1.7	10.4	10.5	2.7	14.5	14.5	0.0	0.0	1.3	11.5	0.0	0.0
Cycle Q Clear(g_c), s	1.7	10.4	10.5	2.7	14.5	14.5	5.8	0.0	1.3	17.3	0.0	0.0
Prop In Lane	1.00		0.28	1.00		0.16	0.55		1.00	0.36		0.21
Lane Grp Cap(c), veh/h	81	624	626	104	646	661	536	0	594	599	0	0
V/C Ratio(X)	0.60	0.58	0.58	0.73	0.73	0.73	0.31	0.00	0.08	0.68	0.00	0.00
Avail Cap(c_a), veh/h	141	624	626	149	646	661	1083	0	1231	1219	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	29.5	16.6	16.6	29.2	17.3	17.3	13.9	0.0	12.7	18.2	0.0	0.0
Incr Delay (d2), s/veh	7.1	3.9	3.9	10.2	7.1	7.0	0.3	0.0	0.1	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	5.8	5.8	1.6	8.3	8.5	2.1	0.0	0.6	6.6	0.0	0.0
LnGrp Delay(d),s/veh	36.6	20.5	20.5	39.4	24.4	24.3	14.2	0.0	12.8	19.6	0.0	0.0
LnGrp LOS	D	C	C	D	C	C	B		B	B		
Approach Vol, veh/h		772			1030			213			407	
Approach Delay, s/veh		21.5			25.5			13.8			19.6	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		28.1	8.2	26.7		28.1	7.4	27.5
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		49.0	5.3	22.2		49.0	5.0	22.5
Max Q Clear Time (g_c+I1), s		7.8	4.7	12.5		19.3	3.7	16.5
Green Ext Time (p_c), s		4.5	0.0	6.0		4.3	0.0	4.1

Intersection Summary	
HCM 2010 Ctrl Delay	22.2
HCM 2010 LOS	C

Notes

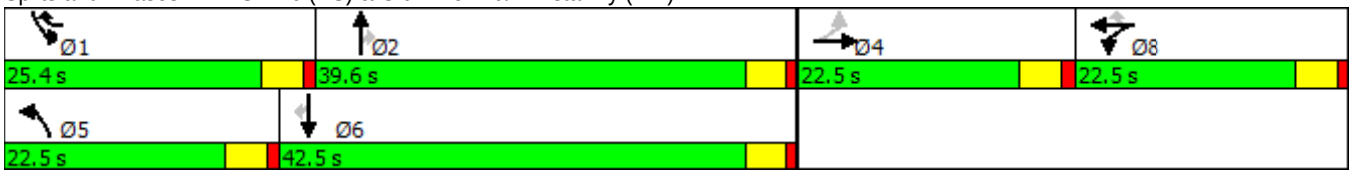
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	31	69	193	26	557	52	1527	424	603	961	16
Future Volume (vph)	16	31	69	193	26	557	52	1527	424	603	961	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	8
Storage Length (ft)	0		0	273		0	833		540	382		100
Storage Lanes	0		0	1		1	1		1	2		1
Taper Length (ft)	25			25			25			120		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt		0.911				0.850			0.850			0.850
Flt Protected		0.993		0.950	0.963		0.950			0.950		
Satd. Flow (prot)	0	3202	0	1681	1704	1583	1770	5085	1583	3433	5085	1372
Flt Permitted		0.622		0.950	0.963		0.950			0.950		
Satd. Flow (perm)	0	2005	0	1681	1704	1583	1770	5085	1583	3433	5085	1372
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		75				325			461			104
Link Speed (mph)		50			30			30			30	
Link Distance (ft)		948			495			1112			1560	
Travel Time (s)		12.9			11.3			25.3			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	34	75	210	28	605	57	1660	461	655	1045	17
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	126	0	118	120	605	57	1660	461	655	1045	17
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	8	1	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4					8			2			6
Detector Phase	4	4		8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5	25.4	22.5	39.6	39.6	25.4	42.5	42.5
Total Split (%)	20.5%	20.5%		20.5%	20.5%	23.1%	20.5%	36.0%	36.0%	23.1%	38.6%	38.6%
Maximum Green (s)	18.0	18.0		18.0	18.0	20.9	18.0	35.1	35.1	20.9	38.0	38.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		8.2		11.9	11.9	37.5	8.4	35.3	35.3	21.0	50.0	50.0
Actuated g/C Ratio		0.09		0.13	0.13	0.40	0.09	0.37	0.37	0.22	0.53	0.53
v/c Ratio		0.52		0.56	0.56	0.74	0.36	0.88	0.52	0.86	0.39	0.02
Control Delay		27.2		49.5	49.4	16.9	48.0	34.9	4.7	49.1	15.7	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		27.2		49.5	49.4	16.9	48.0	34.9	4.7	49.1	15.7	0.1
LOS		C		D	D	B	D	C	A	D	B	A
Approach Delay		27.2			26.1			28.9			28.3	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 94.5			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 28.1		Intersection LOS: C	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)



HCM 2010 Signalized Intersection Summary
1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	31	69	193	26	557	52	1527	424	603	961	16
Future Volume (veh/h)	16	31	69	193	26	557	52	1527	424	603	961	16
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1788
Adj Flow Rate, veh/h	17	34	75	230	0	605	57	1660	461	655	1045	17
Adj No. of Lanes	0	2	0	2	0	1	1	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	83	108	650	0	620	93	1816	565	717	2608	780
Arrive On Green	0.07	0.07	0.07	0.18	0.00	0.18	0.05	0.36	0.36	0.21	0.51	0.51
Sat Flow, veh/h	611	1221	1583	3548	0	1583	1774	5085	1583	3442	5085	1520
Grp Volume(v), veh/h	51	0	75	230	0	605	57	1660	461	655	1045	17
Grp Sat Flow(s),veh/h/ln	1832	0	1583	1774	0	1583	1774	1695	1583	1721	1695	1520
Q Serve(g_s), s	2.6	0.0	4.6	5.6	0.0	18.0	3.1	30.6	26.0	18.3	12.4	0.5
Cycle Q Clear(g_c), s	2.6	0.0	4.6	5.6	0.0	18.0	3.1	30.6	26.0	18.3	12.4	0.5
Prop In Lane	0.33		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	125	0	108	650	0	620	93	1816	565	717	2608	780
V/C Ratio(X)	0.41	0.00	0.69	0.35	0.00	0.98	0.61	0.91	0.82	0.91	0.40	0.02
Avail Cap(c_a), veh/h	336	0	290	650	0	620	325	1816	565	732	2608	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.9	0.0	44.8	35.1	0.0	29.4	45.6	30.2	28.7	38.0	14.7	11.8
Incr Delay (d2), s/veh	2.1	0.0	7.7	0.3	0.0	30.0	6.3	8.6	12.3	15.7	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.2	2.7	0.0	21.3	1.7	15.7	13.2	10.2	5.9	0.2
LnGrp Delay(d),s/veh	46.0	0.0	52.5	35.4	0.0	59.5	51.9	38.8	40.9	53.7	15.1	11.8
LnGrp LOS	D		D	D		E	D	D	D	D	B	B
Approach Vol, veh/h		126			835			2178			1717	
Approach Delay, s/veh		49.9			52.8			39.6			29.8	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.0	39.6		11.2	9.7	54.9		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.9	35.1		18.0	18.0	38.0		18.0
Max Q Clear Time (g_c+I1), s	20.3	32.6		6.6	5.1	14.4		20.0
Green Ext Time (p_c), s	0.2	2.4		0.4	0.1	20.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.7
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	183	180	99	1975	1250	166
Future Volume (vph)	183	180	99	1975	1250	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	84	0	756			755
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		184				169
Link Speed (mph)	30			30	30	
Link Distance (ft)	1509			1887	2556	
Travel Time (s)	34.3			42.9	58.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	187	184	101	2015	1276	169
Shared Lane Traffic (%)						
Lane Group Flow (vph)	187	184	101	2015	1276	169
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	42.5	42.5	9.5	22.5	30.5	30.5
Total Split (s)	42.5	42.5	13.6	62.5	48.9	48.9
Total Split (%)	40.5%	40.5%	13.0%	59.5%	46.6%	46.6%
Maximum Green (s)	38.0	38.0	9.1	58.0	44.4	44.4
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	31.0	31.0			19.0	19.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	13.7	13.7	8.6	58.1	47.4	47.4
Actuated g/C Ratio	0.17	0.17	0.11	0.72	0.59	0.59
v/c Ratio	0.62	0.44	0.54	0.79	0.61	0.17
Control Delay	40.6	8.2	46.4	11.2	14.1	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	8.2	46.4	11.2	14.1	2.3
LOS	D	A	D	B	B	A
Approach Delay	24.5			12.9	12.7	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 105			
Actuated Cycle Length: 80.8			
Natural Cycle: 105			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 13.9		Intersection LOS: B	
Intersection Capacity Utilization 72.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: SR-76 (NS) & North River Rd (EW)

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	183	180	99	1975	1250	166
Future Volume (veh/h)	183	180	99	1975	1250	166
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	187	184	101	2015	1276	169
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	269	240	129	2599	2139	957
Arrive On Green	0.15	0.15	0.07	0.73	0.60	0.60
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	187	184	101	2015	1276	169
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	7.9	8.8	4.4	27.7	17.6	3.7
Cycle Q Clear(g_c), s	7.9	8.8	4.4	27.7	17.6	3.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	269	240	129	2599	2139	957
V/C Ratio(X)	0.70	0.77	0.78	0.78	0.60	0.18
Avail Cap(c_a), veh/h	854	762	204	2599	2139	957
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	32.2	36.0	6.5	9.7	6.9
Incr Delay (d2), s/veh	3.2	5.1	9.7	2.3	1.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	7.7	2.5	14.0	8.9	1.7
LnGrp Delay(d),s/veh	35.0	37.2	45.7	8.8	10.9	7.3
LnGrp LOS	C	D	D	A	B	A
Approach Vol, veh/h	371			2116	1445	
Approach Delay, s/veh	36.1			10.6	10.5	
Approach LOS	D			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		62.5		16.5	10.3	52.2		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		58.0		38.0	9.1	44.4		
Max Q Clear Time (g_c+I1), s		29.7		10.8	6.4	19.6		
Green Ext Time (p_c), s		26.5		1.2	0.0	23.4		

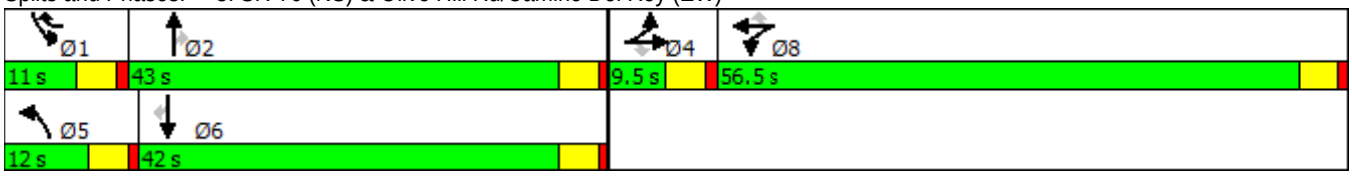
Intersection Summary	
HCM 2010 Ctrl Delay	12.9
HCM 2010 LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	62	115	99	94	337	167	1759	159	230	1161	68
Future Volume (vph)	127	62	115	99	94	337	167	1759	159	230	1161	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		219	190		227	834		478	600		476
Storage Lanes	2		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			55			166			95
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		480			1346			1011			2331	
Travel Time (s)		6.5			18.4			23.0			53.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	132	65	120	103	98	351	174	1832	166	240	1209	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	65	120	103	98	351	174	1832	166	240	1209	71
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases			4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	9.5	56.5	56.5	9.5	9.5	9.5	9.5	9.5	39.5	39.5
Total Split (s)	9.5	9.5	9.5	56.5	56.5	11.0	12.0	43.0	43.0	11.0	42.0	42.0
Total Split (%)	7.9%	7.9%	7.9%	47.1%	47.1%	9.2%	10.0%	35.8%	35.8%	9.2%	35.0%	35.0%
Maximum Green (s)	5.0	5.0	5.0	52.0	52.0	6.5	7.5	38.5	38.5	6.5	37.5	37.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)				7.0	7.0						7.0	7.0
Flash Dont Walk (s)				45.0	45.0						28.0	28.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)	5.0	5.0	5.0	9.8	9.8	20.8	7.5	38.5	38.5	6.5	37.5	37.5
Actuated g/C Ratio	0.06	0.06	0.06	0.13	0.13	0.27	0.10	0.49	0.49	0.08	0.48	0.48
v/c Ratio	0.60	0.55	0.56	0.46	0.42	0.76	1.02	0.73	0.19	0.84	0.49	0.09
Control Delay	48.5	54.8	18.7	38.5	36.9	33.5	114.7	18.0	2.7	62.1	14.8	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	54.8	18.7	38.5	36.9	33.5	114.7	18.0	2.7	62.1	14.8	2.0
LOS	D	D	B	D	D	C	F	B	A	E	B	A
Approach Delay		38.5			35.1			24.5			21.7	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 77.8			
Natural Cycle: 135			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 70.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	62	115	99	94	337	167	1759	159	230	1161	68
Future Volume (veh/h)	127	62	115	99	94	337	167	1759	159	230	1161	68
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	132	65	120	103	98	351	174	1832	166	240	1209	71
Adj No. of Lanes	2	1	1	1	1	1	1	3	1	2	3	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	192	104	88	426	447	495	149	2188	681	250	2131	664
Arrive On Green	0.06	0.06	0.06	0.24	0.24	0.24	0.08	0.43	0.43	0.07	0.42	0.42
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	1774	5085	1583	3442	5085	1583
Grp Volume(v), veh/h	132	65	120	103	98	351	174	1832	166	240	1209	71
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1774	1695	1583	1721	1695	1583
Q Serve(g_s), s	3.4	3.1	5.0	4.2	3.8	17.5	7.5	28.7	6.0	6.2	16.2	2.4
Cycle Q Clear(g_c), s	3.4	3.1	5.0	4.2	3.8	17.5	7.5	28.7	6.0	6.2	16.2	2.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	192	104	88	426	447	495	149	2188	681	250	2131	664
V/C Ratio(X)	0.69	0.62	1.36	0.24	0.22	0.71	1.17	0.84	0.24	0.96	0.57	0.11
Avail Cap(c_a), veh/h	192	104	88	1031	1083	1035	149	2188	681	250	2131	664
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	41.3	42.2	27.4	27.3	27.2	41.0	22.7	16.2	41.4	19.8	15.8
Incr Delay (d2), s/veh	9.7	11.1	217.4	0.3	0.2	1.9	126.8	4.0	0.8	45.7	1.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	1.9	7.5	2.1	2.0	7.9	8.9	14.2	2.7	4.5	7.7	1.1
LnGrp Delay(d),s/veh	51.2	52.4	259.7	27.7	27.5	29.0	167.8	26.7	17.1	87.1	20.9	16.1
LnGrp LOS	D	D	F	C	C	C	F	C	B	F	C	B
Approach Vol, veh/h		317			552			2172			1520	
Approach Delay, s/veh		130.4			28.5			37.3			31.1	
Approach LOS		F			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	43.0		9.5	12.0	42.0		26.0
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	6.5	38.5		5.0	7.5	37.5		52.0
Max Q Clear Time (g_c+I1), s	8.2	30.7		7.0	9.5	18.2		19.5
Green Ext Time (p_c), s	0.0	7.5		0.0	0.0	17.8		2.0

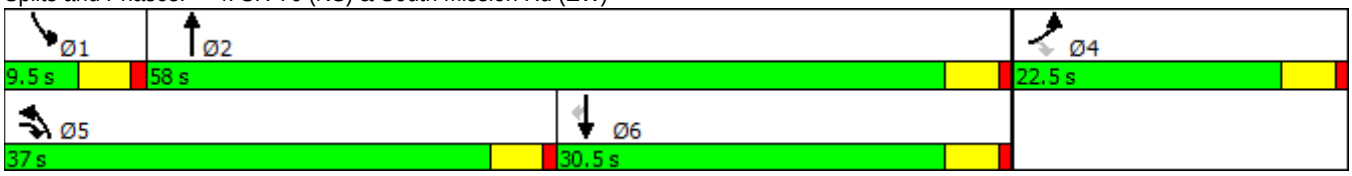
Intersection Summary	
HCM 2010 Ctrl Delay	40.6
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	0	585	0	0	0	1110	1102	0	16	868	77
Future Volume (vph)	88	0	585	0	0	0	1110	1102	0	16	868	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		0	439		0	495		0
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25			25			120			25		
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850									0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3433	0	2787	0	0	0	3433	3539	0	1770	3539	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	0	2787	0	0	0	3433	3539	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			27									127
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			263			2331			1378	
Travel Time (s)		19.9			6.0			53.0			31.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	92	0	609	0	0	0	1156	1148	0	17	904	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	0	609	0	0	0	1156	1148	0	17	904	80
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1		1				1	2		1	2	1
Detector Template	Left		Right				Left	Thru		Left	Thru	Right
Leading Detector (ft)	20		20				20	100		20	100	20
Trailing Detector (ft)	0		0				0	0		0	0	0
Detector 1 Position(ft)	0		0				0	0		0	0	0
Detector 1 Size(ft)	20		20				20	6		20	6	20
Detector 1 Type	Cl+Ex		Cl+Ex				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot		pm+ov				Prot	NA		Prot	NA	Perm
Protected Phases	4		5				5	2		1	6	
Permitted Phases			4									6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4		5				5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0		5.0				5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		9.5				9.5	22.5		9.5	22.5	22.5
Total Split (s)	22.5		37.0				37.0	58.0		9.5	30.5	30.5
Total Split (%)	25.0%		41.1%				41.1%	64.4%		10.6%	33.9%	33.9%
Maximum Green (s)	18.0		32.5				32.5	53.5		5.0	26.0	26.0
Yellow Time (s)	3.5		3.5				3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0				1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5				4.5	4.5		4.5	4.5	4.5
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0		3.0	3.0	3.0
Recall Mode	None		None				None	Max		None	Max	Max
Walk Time (s)	7.0							7.0			7.0	7.0
Flash Dont Walk (s)	11.0							11.0			11.0	11.0
Pedestrian Calls (#/hr)	0							0			0	0
Act Effct Green (s)	7.5		40.3				30.8	61.2		5.1	26.4	26.4
Actuated g/C Ratio	0.10		0.53				0.41	0.81		0.07	0.35	0.35
v/c Ratio	0.27		0.41				0.83	0.40		0.14	0.73	0.13
Control Delay	35.5		10.6				27.1	4.0		38.8	27.5	1.8
Queue Delay	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Delay	35.5		10.6				27.1	4.0		38.8	27.5	1.8
LOS	D		B				C	A		D	C	A
Approach Delay		13.9						15.6			25.6	
Approach LOS		B						B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.8			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 17.8		Intersection LOS: B	
Intersection Capacity Utilization 69.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: SR-76 (NS) & South Mission Rd (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	0	585	0	0	0	1110	1102	0	16	868	77
Future Volume (veh/h)	88	0	585	0	0	0	1110	1102	0	16	868	77
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	92	0	609				1156	1148	0	17	904	80
Adj No. of Lanes	2	0	2				2	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	2				2	2	0	2	2	2
Cap, veh/h	587	0	1490				1254	2304	0	35	1084	485
Arrive On Green	0.17	0.00	0.17				0.36	0.65	0.00	0.02	0.31	0.31
Sat Flow, veh/h	3442	0	2787				3442	3632	0	1774	3539	1583
Grp Volume(v), veh/h	92	0	609				1156	1148	0	17	904	80
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1721	1770	0	1774	1770	1583
Q Serve(g_s), s	1.9	0.0	11.0				27.3	14.2	0.0	0.8	20.2	3.1
Cycle Q Clear(g_c), s	1.9	0.0	11.0				27.3	14.2	0.0	0.8	20.2	3.1
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	587	0	1490				1254	2304	0	35	1084	485
V/C Ratio(X)	0.16	0.00	0.41				0.92	0.50	0.00	0.49	0.83	0.16
Avail Cap(c_a), veh/h	730	0	1606				1318	2304	0	104	1084	485
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	0.0	11.8				25.8	7.6	0.0	41.2	27.4	21.5
Incr Delay (d2), s/veh	0.1	0.0	0.2				10.6	0.8	0.0	10.5	7.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	10.5				14.7	7.1	0.0	0.5	10.9	1.5
LnGrp Delay(d),s/veh	30.1	0.0	11.9				36.4	8.4	0.0	51.7	35.0	22.2
LnGrp LOS	C		B				D	A		D	D	C
Approach Vol, veh/h		701						2304			1001	
Approach Delay, s/veh		14.3						22.5			34.3	
Approach LOS		B						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	6.2	59.8		19.0	35.4	30.5		
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s	5.0	53.5		18.0	32.5	26.0		
Max Q Clear Time (g_c+I1), s	2.8	16.2		13.0	29.3	22.2		
Green Ext Time (p_c), s	0.0	22.5		1.4	1.6	3.4		

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	385	66	0	429	101	0
Future Volume (vph)	385	66	0	429	101	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980					
Flt Protected					0.950	
Satd. Flow (prot)	1825	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1825	0	0	1863	1770	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	1346			174	267	
Travel Time (s)	18.4			2.4	6.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	405	69	0	452	106	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	474	0	0	452	106	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	385	66	0	429	101	0
Future Vol, veh/h	385	66	0	429	101	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	405	69	0	452	106	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	475	0	892	440
Stage 1	-	-	-	-	440	-
Stage 2	-	-	-	-	452	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1087	-	312	617
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1087	-	312	617
Mov Cap-2 Maneuver	-	-	-	-	312	-
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	641	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	22.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	312	-	-	1087	-
HCM Lane V/C Ratio	0.341	-	-	-	-
HCM Control Delay (s)	22.4	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.5	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	385	0	43	429	0	48
Future Volume (vph)	385	0	43	429	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.995		
Satd. Flow (prot)	1863	0	0	1853	1611	0
Flt Permitted				0.995		
Satd. Flow (perm)	1863	0	0	1853	1611	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	174			723	234	
Travel Time (s)	2.4			9.9	5.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	405	0	45	452	0	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	405	0	0	497	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			

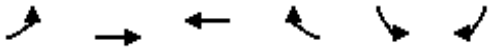
Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	385	0	43	429	0	48
Future Vol, veh/h	385	0	43	429	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	405	0	45	452	0	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	405	0	947	405
Stage 1	-	-	-	-	405	-
Stage 2	-	-	-	-	542	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1154	-	290	646
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1154	-	275	646
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	553	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	646	-	-	1154	-
HCM Lane V/C Ratio	0.078	-	-	0.039	-
HCM Control Delay (s)	11	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	105	328	382	7	8	91
Future Volume (vph)	105	328	382	7	8	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	68
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected		0.988			0.950	
Satd. Flow (prot)	0	1840	1863	1583	1770	1583
Flt Permitted		0.988			0.950	
Satd. Flow (perm)	0	1840	1863	1583	1770	1583
Link Speed (mph)		50	50		45	
Link Distance (ft)		951	613		780	
Travel Time (s)		13.0	8.4		11.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	113	353	411	8	9	98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	466	411	8	9	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.5%		ICU Level of Service B	
Analysis Period (min) 15			

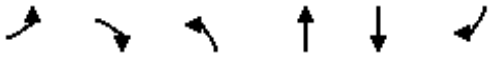
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	105	328	382	7	8	91
Future Vol, veh/h	105	328	382	7	8	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	0	68
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	113	353	411	8	9	98

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	411	0	-	0	989	411
Stage 1	-	-	-	-	411	-
Stage 2	-	-	-	-	578	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1148	-	-	-	274	641
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	561	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1148	-	-	-	241	641
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	493	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1148	-	-	-	241	641
HCM Lane V/C Ratio	0.098	-	-	-	0.036	0.153
HCM Control Delay (s)	8.5	0	-	-	20.5	11.6
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.1	0.5



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	8	5	1259	933	55
Future Volume (vph)	16	8	5	1259	933	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	550			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.992	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1848	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1848	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	1025			6793	3274	
Travel Time (s)	23.3			154.4	74.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	9	5	1354	1003	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	9	5	1354	1062	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

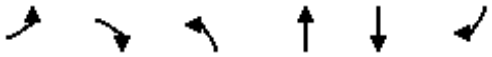
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	8	5	1259	933	55
Future Vol, veh/h	16	8	5	1259	933	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	550	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	9	5	1354	1003	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2398	1033	1062	0	-	0
Stage 1	1033	-	-	-	-	-
Stage 2	1365	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	37	282	656	-	-	-
Stage 1	343	-	-	-	-	-
Stage 2	237	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	37	282	656	-	-	-
Mov Cap-2 Maneuver	37	-	-	-	-	-
Stage 1	343	-	-	-	-	-
Stage 2	235	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	118.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	656	-	37	282	-	-
HCM Lane V/C Ratio	0.008	-	0.465	0.031	-	-
HCM Control Delay (s)	10.5	-	168.6	18.2	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0	-	1.6	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	10	22	245	105	20
Future Volume (vph)	13	10	22	245	105	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.978	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1822	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1822	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	531			4215	454	
Travel Time (s)	12.1			95.8	10.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	14	11	24	263	113	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	11	24	263	135	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane					Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.4%		ICU Level of Service A	
Analysis Period (min) 15			

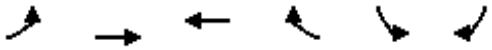
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	10	22	245	105	20
Future Vol, veh/h	13	10	22	245	105	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	11	24	263	113	22

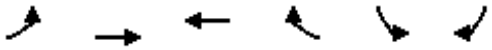
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	435	124	134	0	-	0
Stage 1	124	-	-	-	-	-
Stage 2	311	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	578	927	1451	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	568	927	1451	-	-	-
Mov Cap-2 Maneuver	672	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	731	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1451	-	672	927	-	-
HCM Lane V/C Ratio	0.016	-	0.021	0.012	-	-
HCM Control Delay (s)	7.5	-	10.5	8.9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0	-	-



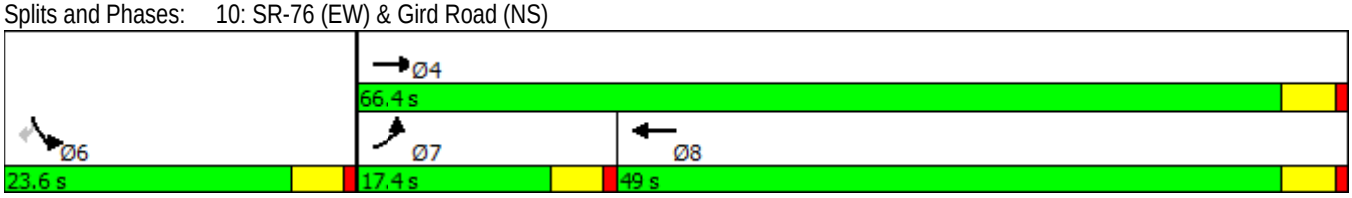
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	233	1013	852	65	38	167
Future Volume (vph)	233	1013	852	65	38	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	490			0	0	228
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.990			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1844	0	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1863	1844	0	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			6			169
Link Speed (mph)		30	30		50	
Link Distance (ft)		3274	12216		4215	
Travel Time (s)		74.4	277.6		57.5	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	235	1023	861	66	38	169
Shared Lane Traffic (%)						
Lane Group Flow (vph)	235	1023	927	0	38	169
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA		Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases						6

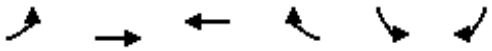


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	9.5	22.5	22.5		22.5	22.5
Total Split (s)	17.4	66.4	49.0		23.6	23.6
Total Split (%)	19.3%	73.8%	54.4%		26.2%	26.2%
Maximum Green (s)	12.9	61.9	44.5		19.1	19.1
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	Max	Max		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0
Act Effct Green (s)	12.9	61.9	44.5		7.6	7.6
Actuated g/C Ratio	0.16	0.79	0.57		0.10	0.10
v/c Ratio	0.81	0.70	0.88		0.22	0.56
Control Delay	55.2	7.5	27.6		35.6	13.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	55.2	7.5	27.6		35.6	13.3
LOS	E	A	C		D	B
Approach Delay		16.4	27.6		17.4	
Approach LOS		B	C		B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78.5			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 20.8		Intersection LOS: C	
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 10: SR-76 (EW) & Gird Road (NS)

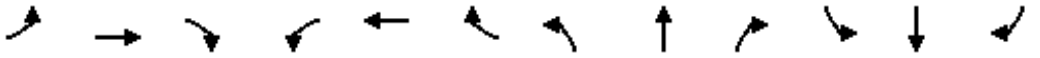




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	233	1013	852	65	38	167
Future Volume (veh/h)	233	1013	852	65	38	167
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	235	1023	861	66	38	169
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	272	1412	939	72	233	208
Arrive On Green	0.15	0.76	0.55	0.55	0.13	0.13
Sat Flow, veh/h	1774	1863	1709	131	1774	1583
Grp Volume(v), veh/h	235	1023	0	927	38	169
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1840	1774	1583
Q Serve(g_s), s	10.6	24.1	0.0	37.3	1.6	8.5
Cycle Q Clear(g_c), s	10.6	24.1	0.0	37.3	1.6	8.5
Prop In Lane	1.00			0.07	1.00	1.00
Lane Grp Cap(c), veh/h	272	1412	0	1011	233	208
V/C Ratio(X)	0.86	0.72	0.00	0.92	0.16	0.81
Avail Cap(c_a), veh/h	280	1412	0	1011	415	370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	5.3	0.0	16.7	31.5	34.5
Incr Delay (d2), s/veh	22.8	3.3	0.0	14.2	0.3	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	13.2	0.0	22.8	0.8	7.6
LnGrp Delay(d),s/veh	56.6	8.6	0.0	30.9	31.8	41.8
LnGrp LOS	E	A		C	C	D
Approach Vol, veh/h		1258	927		207	
Approach Delay, s/veh		17.5	30.9		40.0	
Approach LOS		B	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				66.4		15.2	17.0	49.4
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				61.9		19.1	12.9	44.5
Max Q Clear Time (g_c+I1), s				26.1		10.5	12.6	39.3
Green Ext Time (p_c), s				22.8		0.4	0.0	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

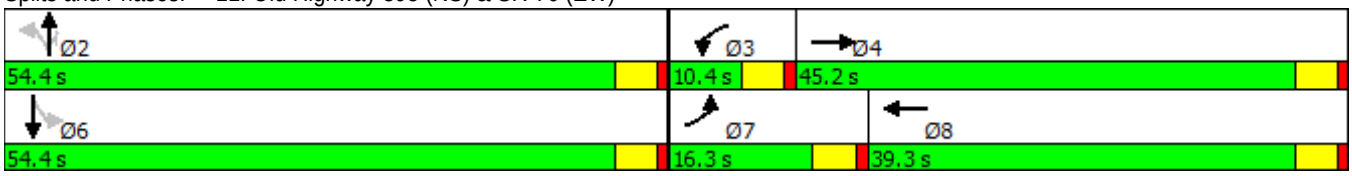


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	167	819	71	48	738	374	89	209	76	140	86	67
Future Volume (vph)	167	819	71	48	738	374	89	209	76	140	86	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	503		0	275		0	0		194	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.988			0.950			0.996	0.850		0.969	
Flt Protected	0.950			0.950				0.986			0.977	
Satd. Flow (prot)	1770	3497	0	1770	3362	0	0	1738	1504	0	1763	0
Flt Permitted	0.950			0.950				0.806			0.468	
Satd. Flow (perm)	1770	3497	0	1770	3362	0	0	1421	1504	0	845	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			85			2	104		18	
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		12216			518			1079			789	
Travel Time (s)		151.4			6.4			24.5			17.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	174	853	74	50	769	390	93	218	79	146	90	70
Shared Lane Traffic (%)									10%			
Lane Group Flow (vph)	174	927	0	50	1159	0	0	319	71	0	306	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		53.5	53.5	53.5	42.5	42.5	
Total Split (s)	16.3	45.2		10.4	39.3		54.4	54.4	54.4	54.4	54.4	
Total Split (%)	14.8%	41.1%		9.5%	35.7%		49.5%	49.5%	49.5%	49.5%	49.5%	
Maximum Green (s)	11.8	40.7		5.9	34.8		49.9	49.9	49.9	49.9	49.9	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5	4.5		4.5	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		None	Max		None	None	None	None	None	
Walk Time (s)		7.0					7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0					42.0	42.0	42.0	31.0	31.0	
Pedestrian Calls (#/hr)		0					0	0	0	0	0	
Act Effct Green (s)	11.9	43.7		5.9	35.3			30.2	30.2		30.2	
Actuated g/C Ratio	0.13	0.48		0.06	0.39			0.33	0.33		0.33	
v/c Ratio	0.75	0.55		0.43	0.86			0.67	0.12		1.05	
Control Delay	62.2	21.1		57.3	33.2			32.8	1.9		94.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	62.2	21.1		57.3	33.2			32.8	1.9		94.1	
LOS	E	C		E	C			C	A		F	
Approach Delay		27.6			34.2			27.2			94.1	
Approach LOS		C			C			C			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 91.1			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 37.0		Intersection LOS: D	
Intersection Capacity Utilization 90.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 11: Old Highway 395 (NS) & SR-76 (EW)



HCM 2010 Signalized Intersection Summary
11: Old Highway 395 (NS) & SR-76 (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	819	71	48	738	374	89	209	76	140	86	67
Future Volume (veh/h)	167	819	71	48	738	374	89	209	76	140	86	67
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	174	853	74	50	769	390	93	218	79	146	90	70
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	205	1417	123	67	802	405	197	440	627	210	127	84
Arrive On Green	0.12	0.43	0.43	0.04	0.35	0.35	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1774	3296	286	1774	2278	1152	379	1112	1583	395	321	212
Grp Volume(v), veh/h	174	458	469	50	597	562	311	0	79	306	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1812	1774	1770	1660	1492	0	1583	928	0	0
Q Serve(g_s), s	9.5	19.7	19.7	2.8	32.6	32.8	0.0	0.0	3.1	18.3	0.0	0.0
Cycle Q Clear(g_c), s	9.5	19.7	19.7	2.8	32.6	32.8	15.0	0.0	3.1	33.3	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.69	0.30		1.00	0.48		0.23
Lane Grp Cap(c), veh/h	205	761	779	67	623	584	638	0	627	421	0	0
V/C Ratio(X)	0.85	0.60	0.60	0.75	0.96	0.96	0.49	0.00	0.13	0.73	0.00	0.00
Avail Cap(c_a), veh/h	212	761	779	106	623	584	813	0	799	567	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.9	21.7	21.7	47.1	31.3	31.4	22.2	0.0	19.0	32.2	0.0	0.0
Incr Delay (d2), s/veh	25.7	3.5	3.4	15.1	27.1	29.0	0.6	0.0	0.1	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	10.3	10.5	1.6	20.6	19.7	6.5	0.0	1.4	8.2	0.0	0.0
LnGrp Delay(d),s/veh	68.6	25.2	25.1	62.2	58.4	60.3	22.8	0.0	19.1	35.2	0.0	0.0
LnGrp LOS	E	C	C	E	E	E	C		B	D		
Approach Vol, veh/h		1101			1209			390			306	
Approach Delay, s/veh		32.0			59.5			22.0			35.2	
Approach LOS		C			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		43.6	8.2	47.0		43.6	15.9	39.3
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		49.9	5.9	40.7		49.9	11.8	34.8
Max Q Clear Time (g_c+I1), s		17.0	4.8	21.7		35.3	11.5	34.8
Green Ext Time (p_c), s		4.9	0.0	11.8		3.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	42.1
HCM 2010 LOS	D

Notes

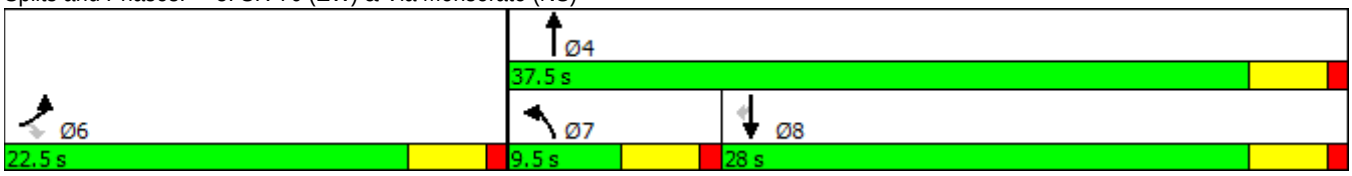
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	20	9	848	1121	30
Future Volume (vph)	65	20	9	848	1121	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	550			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				31
Link Speed (mph)	30			30	30	
Link Distance (ft)	1025			6793	3274	
Travel Time (s)	23.3			154.4	74.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	68	21	9	883	1168	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	21	9	883	1168	31
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	6		7	4	8	
Permitted Phases		6				8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	6	6	7	4	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	9.5	37.5	28.0	28.0
Total Split (%)	37.5%	37.5%	15.8%	62.5%	46.7%	46.7%
Maximum Green (s)	18.0	18.0	5.0	33.0	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	18.2	18.2	5.0	24.1	22.4	22.4
Actuated g/C Ratio	0.35	0.35	0.10	0.47	0.44	0.44
v/c Ratio	0.11	0.04	0.05	0.53	0.76	0.04
Control Delay	13.4	7.1	24.1	10.7	17.1	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	7.1	24.1	10.7	17.1	4.7
LOS	B	A	C	B	B	A
Approach Delay	11.9			10.9	16.7	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 51.3			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 14.1		Intersection LOS: B	
Intersection Capacity Utilization 42.7%		ICU Level of Service A	
Analysis Period (min) 15			

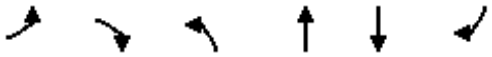
Splits and Phases: 8: SR-76 (EW) & Via Monserate (NS)



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	65	20	9	848	1121	30
Future Volume (veh/h)	65	20	9	848	1121	30
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	68	21	9	883	1168	31
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	582	519	21	1798	1467	656
Arrive On Green	0.33	0.33	0.01	0.51	0.41	0.41
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	68	21	9	883	1168	31
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	1.5	0.5	0.3	9.0	15.8	0.6
Cycle Q Clear(g_c), s	1.5	0.5	0.3	9.0	15.8	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	582	519	21	1798	1467	656
V/C Ratio(X)	0.12	0.04	0.43	0.49	0.80	0.05
Avail Cap(c_a), veh/h	582	519	162	2128	1515	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.9	12.6	26.9	8.8	14.0	9.6
Incr Delay (d2), s/veh	0.4	0.1	13.7	0.2	3.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.6	0.2	4.3	8.2	0.3
LnGrp Delay(d),s/veh	13.3	12.7	40.6	9.1	17.0	9.6
LnGrp LOS	B	B	D	A	B	A
Approach Vol, veh/h	89			892	1199	
Approach Delay, s/veh	13.2			9.4	16.8	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				32.4		22.5	5.1	27.2
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0		18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				11.0		3.5	2.3	17.8
Green Ext Time (p_c), s				15.6		0.2	0.0	4.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.6
HCM 2010 LOS	B

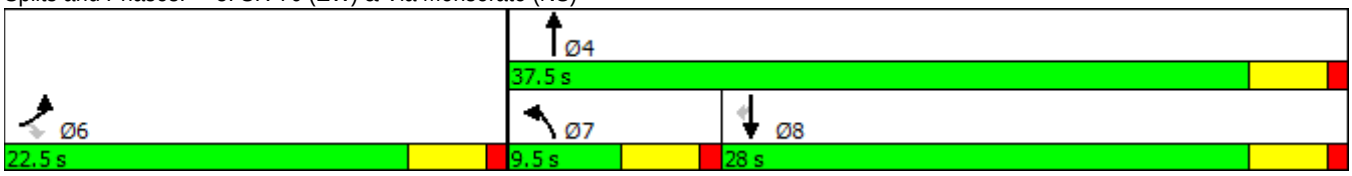


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	8	5	1259	933	55
Future Volume (vph)	16	8	5	1259	933	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	550			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		9				59
Link Speed (mph)	30			30	30	
Link Distance (ft)	1025			6793	3274	
Travel Time (s)	23.3			154.4	74.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	9	5	1354	1003	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	9	5	1354	1003	59
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	6		7	4	8	
Permitted Phases		6				8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	6	6	7	4	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	9.5	37.5	28.0	28.0
Total Split (%)	37.5%	37.5%	15.8%	62.5%	46.7%	46.7%
Maximum Green (s)	18.0	18.0	5.0	33.0	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	18.2	18.2	5.0	29.3	27.5	27.5
Actuated g/C Ratio	0.32	0.32	0.09	0.52	0.49	0.49
v/c Ratio	0.03	0.02	0.03	0.74	0.58	0.07
Control Delay	15.1	9.1	25.8	13.3	12.6	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	9.1	25.8	13.3	12.6	3.7
LOS	B	A	C	B	B	A
Approach Delay	13.0			13.4	12.1	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 56.5			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 12.8		Intersection LOS: B	
Intersection Capacity Utilization 46.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 8: SR-76 (EW) & Via Monserate (NS)

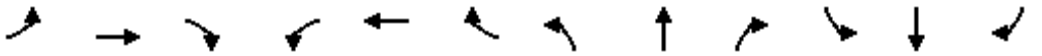


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	8	5	1259	933	55
Future Volume (veh/h)	16	8	5	1259	933	55
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	17	9	5	1354	1003	59
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	562	502	12	1857	1552	695
Arrive On Green	0.32	0.32	0.01	0.52	0.44	0.44
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	17	9	5	1354	1003	59
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	0.4	0.2	0.2	16.7	12.6	1.2
Cycle Q Clear(g_c), s	0.4	0.2	0.2	16.7	12.6	1.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	562	502	12	1857	1552	695
V/C Ratio(X)	0.03	0.02	0.42	0.73	0.65	0.08
Avail Cap(c_a), veh/h	562	502	156	2057	1552	695
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	13.3	28.1	10.4	12.5	9.3
Incr Delay (d2), s/veh	0.1	0.1	22.1	1.2	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.2	0.1	8.4	6.3	0.6
LnGrp Delay(d),s/veh	13.5	13.4	50.2	11.6	13.4	9.3
LnGrp LOS	B	B	D	B	B	A
Approach Vol, veh/h	26			1359	1062	
Approach Delay, s/veh	13.4			11.7	13.2	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				34.3		22.5	4.9	29.4
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0		18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				18.7		2.4	2.2	14.6
Green Ext Time (p_c), s				11.1		0.0	0.0	7.9

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

Year 2025 Without Project

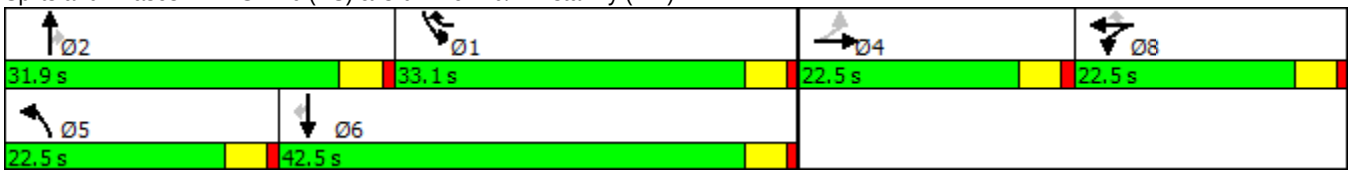


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	63	73	281	18	515	20	772	336	602	1746	18
Future Volume (vph)	5	63	73	281	18	515	20	772	336	602	1746	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	8
Storage Length (ft)	0		0	273		0	833		540	382		100
Storage Lanes	0		0	1		1	1		1	2		1
Taper Length (ft)	25			25			25			120		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt		0.922				0.850			0.850			0.850
Flt Protected		0.998		0.950	0.958		0.950			0.950		
Satd. Flow (prot)	0	3257	0	1681	1695	1583	1770	5085	1583	3433	5085	1372
Flt Permitted		0.595		0.950	0.958		0.950			0.950		
Satd. Flow (perm)	0	1942	0	1681	1695	1583	1770	5085	1583	3433	5085	1372
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76				469			350			104
Link Speed (mph)		50			30			30			30	
Link Distance (ft)		948			495			1112			1560	
Travel Time (s)		12.9			11.3			25.3			35.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	5	66	76	293	19	536	21	804	350	627	1819	19
Shared Lane Traffic (%)				47%								
Lane Group Flow (vph)	0	147	0	155	157	536	21	804	350	627	1819	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	8	1	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4					8			2			6
Detector Phase	4	4		8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5	33.1	22.5	31.9	31.9	33.1	42.5	42.5
Total Split (%)	20.5%	20.5%		20.5%	20.5%	30.1%	20.5%	29.0%	29.0%	30.1%	38.6%	38.6%
Maximum Green (s)	18.0	18.0		18.0	18.0	28.6	18.0	27.4	27.4	28.6	38.0	38.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		8.4		13.4	13.4	36.4	6.7	27.8	27.8	23.0	50.9	50.9
Actuated g/C Ratio		0.09		0.15	0.15	0.40	0.07	0.31	0.31	0.25	0.56	0.56
v/c Ratio		0.59		0.62	0.63	0.59	0.16	0.52	0.48	0.72	0.64	0.02
Control Delay		31.9		49.5	49.5	4.5	46.1	29.1	5.9	36.9	17.2	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		31.9		49.5	49.5	4.5	46.1	29.1	5.9	36.9	17.2	0.1
LOS		C		D	D	A	D	C	A	D	B	A
Approach Delay		31.9			21.0			22.5			22.1	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 90.9			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 65.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)



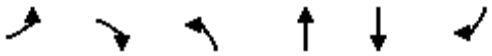
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	63	73	281	18	515	20	772	336	602	1746	18
Future Volume (veh/h)	5	63	73	281	18	515	20	772	336	602	1746	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1788
Adj Flow Rate, veh/h	5	66	76	307	0	536	21	804	350	627	1819	19
Adj No. of Lanes	0	2	0	2	0	1	1	3	1	2	3	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	10	128	117	514	0	590	108	1697	528	784	2546	761
Arrive On Green	0.07	0.07	0.07	0.14	0.00	0.14	0.06	0.33	0.33	0.23	0.50	0.50
Sat Flow, veh/h	131	1725	1583	3548	0	1583	1774	5085	1583	3442	5085	1520
Grp Volume(v), veh/h	71	0	76	307	0	536	21	804	350	627	1819	19
Grp Sat Flow(s),veh/h/ln	1856	0	1583	1774	0	1583	1774	1695	1583	1721	1695	1520
Q Serve(g_s), s	3.0	0.0	3.8	6.6	0.0	7.6	0.9	10.3	15.5	14.1	22.8	0.5
Cycle Q Clear(g_c), s	3.0	0.0	3.8	6.6	0.0	7.6	0.9	10.3	15.5	14.1	22.8	0.5
Prop In Lane	0.07		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	0	117	514	0	590	108	1697	528	784	2546	761
V/C Ratio(X)	0.52	0.00	0.65	0.60	0.00	0.91	0.19	0.47	0.66	0.80	0.71	0.02
Avail Cap(c_a), veh/h	407	0	347	778	0	708	389	1697	528	1199	2546	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	0.0	37.0	32.8	0.0	24.4	36.6	21.6	23.4	29.9	15.9	10.4
Incr Delay (d2), s/veh	3.0	0.0	5.9	1.1	0.0	13.9	0.9	1.0	6.4	2.3	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	1.9	3.3	0.0	12.6	0.5	4.9	7.6	7.0	11.0	0.2
LnGrp Delay(d),s/veh	39.6	0.0	42.8	34.0	0.0	38.4	37.5	22.6	29.8	32.2	17.7	10.4
LnGrp LOS	D		D	C		D	D	C	C	C	B	B
Approach Vol, veh/h		147			843			1175			2465	
Approach Delay, s/veh		41.2			36.8			25.0			21.3	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.2	31.9		10.6	9.5	45.6		16.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	28.6	27.4		18.0	18.0	38.0		18.0
Max Q Clear Time (g_c+I1), s	16.1	17.5		5.8	2.9	24.8		9.6
Green Ext Time (p_c), s	2.6	4.8		0.5	0.0	11.0		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	25.7
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.



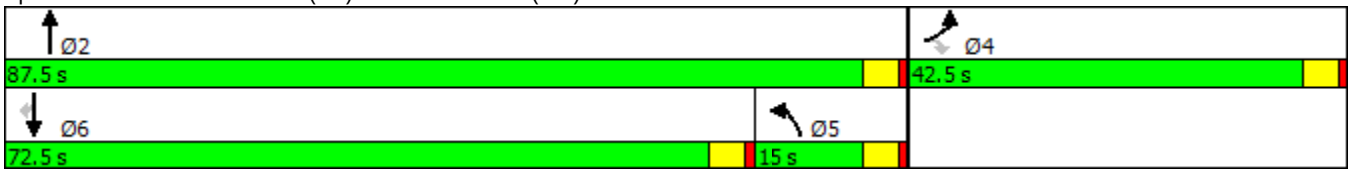
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	165	146	166	1126	2220	231
Future Volume (vph)	165	146	166	1126	2220	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	84	0	756			755
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	*1.00	*1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3725	3725	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3725	3725	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		147				251
Link Speed (mph)	30			30	30	
Link Distance (ft)	1509			1887	2556	
Travel Time (s)	34.3			42.9	58.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	159	180	1224	2413	251
Shared Lane Traffic (%)						
Lane Group Flow (vph)	179	159	180	1224	2413	251
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	42.5	42.5	9.5	9.5	30.5	30.5
Total Split (s)	42.5	42.5	15.0	87.5	72.5	72.5
Total Split (%)	32.7%	32.7%	11.5%	67.3%	55.8%	55.8%
Maximum Green (s)	38.0	38.0	10.5	83.0	68.0	68.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	31.0	31.0			19.0	19.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	16.1	16.1	10.5	83.1	68.1	68.1
Actuated g/C Ratio	0.15	0.15	0.10	0.77	0.63	0.63
v/c Ratio	0.68	0.44	1.05	0.43	1.03	0.23
Control Delay	56.9	12.2	131.1	5.3	48.2	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	12.2	131.1	5.3	48.2	1.8
LOS	E	B	F	A	D	A
Approach Delay	35.9			21.4	43.8	
Approach LOS	D			C	D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 108.3			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 36.1		Intersection LOS: D	
Intersection Capacity Utilization 91.0%		ICU Level of Service E	
Analysis Period (min) 15			

* User Entered Value

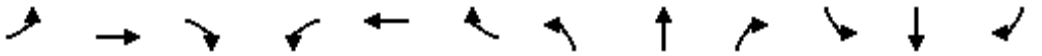
Splits and Phases: 2: SR-76 (NS) & North River Rd (EW)



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	165	146	166	1126	2220	231
Future Volume (veh/h)	165	146	166	1126	2220	231
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	179	159	180	1224	2413	251
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	225	201	177	2935	2404	1022
Arrive On Green	0.13	0.13	0.10	0.79	0.65	0.65
Sat Flow, veh/h	1774	1583	1774	3725	3725	1583
Grp Volume(v), veh/h	179	159	180	1224	2413	251
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583
Q Serve(g_s), s	10.3	10.3	10.5	10.9	68.0	7.0
Cycle Q Clear(g_c), s	10.3	10.3	10.5	10.9	68.0	7.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	225	201	177	2935	2404	1022
V/C Ratio(X)	0.80	0.79	1.02	0.42	1.00	0.25
Avail Cap(c_a), veh/h	640	571	177	2935	2404	1022
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	44.6	47.4	3.5	18.7	7.9
Incr Delay (d2), s/veh	6.3	6.8	72.5	0.4	19.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.2	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	9.1	8.7	5.6	40.8	3.2
LnGrp Delay(d),s/veh	51.0	51.5	120.1	4.0	37.9	8.4
LnGrp LOS	D	D	F	A	F	A
Approach Vol, veh/h	338			1404	2664	
Approach Delay, s/veh	51.2			18.9	35.1	
Approach LOS	D			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.5		17.9	15.0	72.5		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		83.0		38.0	10.5	68.0		
Max Q Clear Time (g_c+I1), s		12.9		12.3	12.5	70.0		
Green Ext Time (p_c), s		14.5		1.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	31.2
HCM 2010 LOS	C

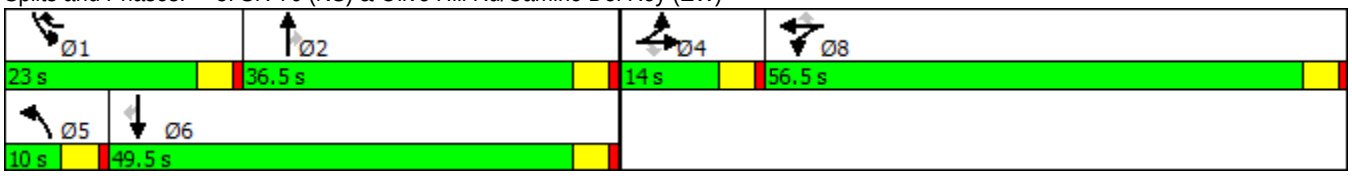


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	196	231	192	84	211	91	1029	171	462	2027	41
Future Volume (vph)	96	196	231	192	84	211	91	1029	171	462	2027	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		219	190		227	834		478	600		476
Storage Lanes	2		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			243			50			180			88
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		480			1346			1011			2331	
Travel Time (s)		6.5			18.4			23.0			53.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	101	206	243	202	88	222	96	1083	180	486	2134	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	206	243	202	88	222	96	1083	180	486	2134	43
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases			4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	9.5	56.5	56.5	9.5	9.5	9.5	9.5	9.5	39.5	39.5
Total Split (s)	14.0	14.0	14.0	56.5	56.5	23.0	10.0	36.5	36.5	23.0	49.5	49.5
Total Split (%)	10.8%	10.8%	10.8%	43.5%	43.5%	17.7%	7.7%	28.1%	28.1%	17.7%	38.1%	38.1%
Maximum Green (s)	9.5	9.5	9.5	52.0	52.0	18.5	5.5	32.0	32.0	18.5	45.0	45.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)				7.0	7.0						7.0	7.0
Flash Dont Walk (s)				45.0	45.0						28.0	28.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)	9.5	9.5	9.5	15.8	15.8	38.9	5.5	32.1	32.1	18.5	45.1	45.1
Actuated g/C Ratio	0.10	0.10	0.10	0.17	0.17	0.41	0.06	0.34	0.34	0.20	0.48	0.48
v/c Ratio	0.29	1.10	0.64	0.68	0.28	0.32	0.93	0.62	0.27	0.72	0.87	0.05
Control Delay	42.6	135.2	14.3	48.5	36.0	15.4	119.0	28.3	5.0	42.8	27.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	135.2	14.3	48.5	36.0	15.4	119.0	28.3	5.0	42.8	27.7	0.5
LOS	D	F	B	D	D	B	F	C	A	D	C	A
Approach Delay		64.8			32.0			31.6			30.0	
Approach LOS		E			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 94			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay: 34.4		Intersection LOS: C	
Intersection Capacity Utilization 80.2%		ICU Level of Service D	
Analysis Period (min) 15			

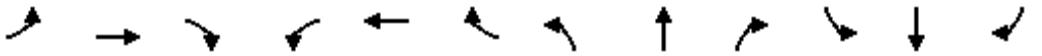
Splits and Phases: 3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	196	231	192	84	211	91	1029	171	462	2027	41
Future Volume (veh/h)	96	196	231	192	84	211	91	1029	171	462	2027	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	101	206	243	202	88	222	96	1083	180	486	2134	43
Adj No. of Lanes	2	1	1	1	1	1	1	3	1	2	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	356	192	164	269	283	504	106	1945	606	574	2489	775
Arrive On Green	0.10	0.10	0.10	0.15	0.15	0.15	0.06	0.38	0.38	0.17	0.49	0.49
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	1774	5085	1583	3442	5085	1583
Grp Volume(v), veh/h	101	206	243	202	88	222	96	1083	180	486	2134	43
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1774	1695	1583	1721	1695	1583
Q Serve(g_s), s	2.5	9.5	9.5	10.0	3.9	10.2	4.9	15.4	7.3	12.6	33.9	1.3
Cycle Q Clear(g_c), s	2.5	9.5	9.5	10.0	3.9	10.2	4.9	15.4	7.3	12.6	33.9	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	356	192	164	269	283	504	106	1945	606	574	2489	775
V/C Ratio(X)	0.28	1.07	1.49	0.75	0.31	0.44	0.90	0.56	0.30	0.85	0.86	0.06
Avail Cap(c_a), veh/h	356	192	164	1003	1053	1159	106	1945	606	692	2489	775
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	41.2	41.2	37.3	34.7	24.8	43.0	22.3	19.8	37.2	20.7	12.3
Incr Delay (d2), s/veh	0.4	84.8	248.1	4.2	0.6	0.6	58.1	1.2	1.3	8.3	4.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	9.4	15.4	5.2	2.0	4.6	4.1	7.3	3.4	6.7	16.7	0.6
LnGrp Delay(d),s/veh	38.5	126.0	289.3	41.5	35.3	25.4	101.1	23.4	21.0	45.4	24.7	12.5
LnGrp LOS	D	F	F	D	D	C	F	C	C	D	C	B
Approach Vol, veh/h		550			512			1359			2663	
Approach Delay, s/veh		182.1			33.5			28.6			28.3	
Approach LOS		F			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.8	39.7		14.0	10.0	49.5		18.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	18.5	32.0		9.5	5.5	45.0		52.0
Max Q Clear Time (g_c+I1), s	14.6	17.4		11.5	6.9	35.9		12.2
Green Ext Time (p_c), s	0.7	14.0		0.0	0.0	8.8		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	45.5
HCM 2010 LOS	D



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	0	1375	0	0	0	613	705	0	6	1223	54
Future Volume (vph)	89	0	1375	0	0	0	613	705	0	6	1223	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		0	439		0	495		0
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25			25			120			25		
Lane Util. Factor	0.97	1.00	*1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850									0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3433	0	3167	0	0	0	3433	3539	0	1770	3539	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	0	3167	0	0	0	3433	3539	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73									73
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			263			2331			1378	
Travel Time (s)		19.9			6.0			53.0			31.3	
Peak Hour Factor	0.98	0.92	0.98	0.92	0.92	0.92	0.98	0.98	0.92	0.92	0.98	0.98
Adj. Flow (vph)	91	0	1403	0	0	0	626	719	0	7	1248	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	0	1403	0	0	0	626	719	0	7	1248	55
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1		1				1	2		1	2	1
Detector Template	Left		Right				Left	Thru		Left	Thru	Right
Leading Detector (ft)	20		20				20	100		20	100	20
Trailing Detector (ft)	0		0				0	0		0	0	0
Detector 1 Position(ft)	0		0				0	0		0	0	0
Detector 1 Size(ft)	20		20				20	6		20	6	20
Detector 1 Type	Cl+Ex		Cl+Ex				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot		pm+ov				Prot	NA		Prot	NA	Perm
Protected Phases	4		5				5	2		1	6	
Permitted Phases			4									6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4		5				5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0		5.0				5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		9.5				9.5	22.5		9.5	22.5	22.5
Total Split (s)	22.5		27.0				27.0	58.0		9.5	40.5	40.5
Total Split (%)	25.0%		30.0%				30.0%	64.4%		10.6%	45.0%	45.0%
Maximum Green (s)	18.0		22.5				22.5	53.5		5.0	36.0	36.0
Yellow Time (s)	3.5		3.5				3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0				1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5				4.5	4.5		4.5	4.5	4.5
Lead/Lag			Lead				Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0		3.0	3.0	3.0
Recall Mode	None		None				None	Max		None	Max	Max
Walk Time (s)	7.0							7.0			7.0	7.0
Flash Dont Walk (s)	11.0							11.0			11.0	11.0
Pedestrian Calls (#/hr)	0							0			0	0
Act Effct Green (s)	7.5		32.3				22.6	62.6		5.0	36.2	36.2
Actuated g/C Ratio	0.10		0.42				0.29	0.81		0.06	0.47	0.47
v/c Ratio	0.28		1.03				0.62	0.25		0.06	0.76	0.07
Control Delay	35.5		55.0				27.8	3.2		37.0	21.5	2.6
Queue Delay	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Delay	35.5		55.0				27.8	3.2		37.0	21.5	2.6
LOS	D		E				C	A		D	C	A
Approach Delay		53.8						14.7			20.8	
Approach LOS		D						B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 77.5			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 30.7		Intersection LOS: C	
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			

* User Entered Value

Splits and Phases: 4: SR-76 (NS) & South Mission Rd (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	0	1375	0	0	0	613	705	0	6	1223	54
Future Volume (veh/h)	89	0	1375	0	0	0	613	705	0	6	1223	54
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	91	0	1403				626	719	0	7	1248	55
Adj No. of Lanes	2	0	2				2	2	0	1	2	1
Peak Hour Factor	0.98	0.92	0.98				0.98	0.98	0.92	0.92	0.98	0.98
Percent Heavy Veh, %	2	0	2				2	2	0	2	2	2
Cap, veh/h	722	0	1339				733	2208	0	16	1485	665
Arrive On Green	0.21	0.00	0.21				0.21	0.62	0.00	0.01	0.42	0.42
Sat Flow, veh/h	3442	0	3167				3442	3632	0	1774	3539	1583
Grp Volume(v), veh/h	91	0	1403				626	719	0	7	1248	55
Grp Sat Flow(s),veh/h/ln	1721	0	1583				1721	1770	0	1774	1770	1583
Q Serve(g_s), s	1.8	0.0	18.0				15.0	8.2	0.0	0.3	27.1	1.8
Cycle Q Clear(g_c), s	1.8	0.0	18.0				15.0	8.2	0.0	0.3	27.1	1.8
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	722	0	1339				733	2208	0	16	1485	665
V/C Ratio(X)	0.13	0.00	1.05				0.85	0.33	0.00	0.44	0.84	0.08
Avail Cap(c_a), veh/h	722	0	1339				903	2208	0	103	1485	665
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	0.0	24.8				32.5	7.6	0.0	42.3	22.3	15.0
Incr Delay (d2), s/veh	0.1	0.0	38.1				6.8	0.4	0.0	17.8	5.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	32.1				7.8	4.1	0.0	0.2	14.4	0.8
LnGrp Delay(d),s/veh	27.6	0.0	62.8				39.2	8.0	0.0	60.1	28.2	15.2
LnGrp LOS	C		F				D	A		E	C	B
Approach Vol, veh/h		1494						1345			1310	
Approach Delay, s/veh		60.7						22.5			27.8	
Approach LOS		E						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	5.3	58.0		22.5	22.8	40.5		
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s	5.0	53.5		18.0	22.5	36.0		
Max Q Clear Time (g_c+I1), s	2.3	10.2		20.0	17.0	29.1		
Green Ext Time (p_c), s	2.0	5.9		0.0	1.3	4.6		

Intersection Summary	
HCM 2010 Ctrl Delay	37.9
HCM 2010 LOS	D

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	595	234	0	373	114	0
Future Volume (vph)	595	234	0	373	114	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962					
Flt Protected					0.950	
Satd. Flow (prot)	1792	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1792	0	0	1863	1770	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	1346			174	267	
Travel Time (s)	18.4			2.4	6.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	633	249	0	397	121	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	882	0	0	397	121	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.5%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	595	234	0	373	114	0
Future Vol, veh/h	595	234	0	373	114	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	633	249	0	397	121	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	882	0	1154	757
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	397	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	767	-	218	408
Stage 1	-	-	-	-	463	-
Stage 2	-	-	-	-	679	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	767	-	218	408
Mov Cap-2 Maneuver	-	-	-	-	218	-
Stage 1	-	-	-	-	463	-
Stage 2	-	-	-	-	679	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	40.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	218	-	-	767	-
HCM Lane V/C Ratio	0.556	-	-	-	-
HCM Control Delay (s)	40.4	-	-	0	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	3	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	595	0	148	373	0	48
Future Volume (vph)	595	0	148	373	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.986		
Satd. Flow (prot)	1863	0	0	1837	1611	0
Flt Permitted				0.986		
Satd. Flow (perm)	1863	0	0	1837	1611	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	174			723	234	
Travel Time (s)	2.4			9.9	5.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	633	0	157	397	0	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	633	0	0	554	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.5%		ICU Level of Service C	
Analysis Period (min) 15			

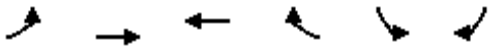
Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	595	0	148	373	0	48
Future Vol, veh/h	595	0	148	373	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	633	0	157	397	0	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	633	0	1345	633
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	712	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	950	-	167	480
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	950	-	132	480
Mov Cap-2 Maneuver	-	-	-	-	132	-
Stage 1	-	-	-	-	529	-
Stage 2	-	-	-	-	383	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	480	-	-	950	-
HCM Lane V/C Ratio	0.106	-	-	0.166	-
HCM Control Delay (s)	13.4	-	-	9.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.6	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	128	515	391	4	6	130
Future Volume (vph)	128	515	391	4	6	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	68
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected		0.990			0.950	
Satd. Flow (prot)	0	1844	1863	1583	1770	1583
Flt Permitted		0.990			0.950	
Satd. Flow (perm)	0	1844	1863	1583	1770	1583
Link Speed (mph)		50	50		45	
Link Distance (ft)		951	613		780	
Travel Time (s)		13.0	8.4		11.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	144	579	439	4	7	146
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	723	439	4	7	146
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

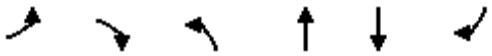
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	128	515	391	4	6	130
Future Vol, veh/h	128	515	391	4	6	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	0	68
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	144	579	439	4	7	146

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	439	0	-	0	1305	439
Stage 1	-	-	-	-	439	-
Stage 2	-	-	-	-	866	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1121	-	-	-	177	618
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	412	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1121	-	-	-	144	618
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	334	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1121	-	-	-	144	618
HCM Lane V/C Ratio	0.128	-	-	-	0.047	0.236
HCM Control Delay (s)	8.7	0	-	-	31.2	12.6
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	0.9

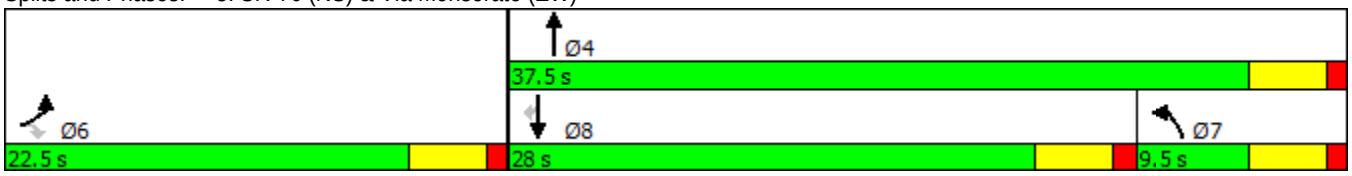


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	63	24	11	817	1256	30
Future Volume (vph)	63	24	11	817	1256	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	550			500
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		25				31
Link Speed (mph)	30			30	30	
Link Distance (ft)	1025			6793	3274	
Travel Time (s)	23.3			154.4	74.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	66	25	11	851	1308	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	66	25	11	851	1308	31
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	6		7	4	8	
Permitted Phases		6				8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	6	6	7	4	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	9.5	37.5	28.0	28.0
Total Split (%)	37.5%	37.5%	15.8%	62.5%	46.7%	46.7%
Maximum Green (s)	18.0	18.0	5.0	33.0	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	18.1	18.1	5.0	25.3	23.6	23.6
Actuated g/C Ratio	0.35	0.35	0.10	0.48	0.45	0.45
v/c Ratio	0.11	0.04	0.07	0.50	0.82	0.04
Control Delay	13.5	6.8	24.3	10.3	19.7	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	6.8	24.3	10.3	19.7	4.7
LOS	B	A	C	B	B	A
Approach Delay	11.6			10.5	19.3	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 52.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 46.4%		ICU Level of Service A	
Analysis Period (min) 15			

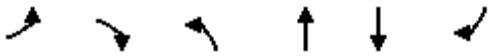
Splits and Phases: 8: SR-76 (NS) & Via Monserate (EW)



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	63	24	11	817	1256	30
Future Volume (veh/h)	63	24	11	817	1256	30
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	66	25	11	851	1308	31
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	579	517	25	1807	1468	657
Arrive On Green	0.33	0.33	0.01	0.51	0.41	0.41
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	66	25	11	851	1308	31
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	1.4	0.6	0.3	8.5	18.9	0.6
Cycle Q Clear(g_c), s	1.4	0.6	0.3	8.5	18.9	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	579	517	25	1807	1468	657
V/C Ratio(X)	0.11	0.05	0.44	0.47	0.89	0.05
Avail Cap(c_a), veh/h	579	517	161	2118	1508	675
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.0	12.7	27.0	8.7	15.0	9.6
Incr Delay (d2), s/veh	0.4	0.2	11.8	0.2	6.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.7	0.2	4.2	10.5	0.3
LnGrp Delay(d),s/veh	13.4	12.9	38.7	8.9	21.9	9.7
LnGrp LOS	B	B	D	A	C	A
Approach Vol, veh/h	91			862	1339	
Approach Delay, s/veh	13.3			9.3	21.6	
Approach LOS	B			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				32.7		22.5	5.3	27.4
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0		18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				10.5		3.4	2.3	20.9
Green Ext Time (p_c), s				6.4		0.2	1.5	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	22	26	10	104	199	13
Future Volume (vph)	22	26	10	104	199	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.992	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1848	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1848	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	531			4215	454	
Travel Time (s)	12.1			95.8	10.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	25	30	11	118	226	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	30	11	118	241	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane					Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.3%		ICU Level of Service A	
Analysis Period (min) 15			

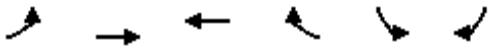
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	26	10	104	199	13
Future Vol, veh/h	22	26	10	104	199	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	30	11	118	226	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	375	234	241	0	-	0
Stage 1	234	-	-	-	-	-
Stage 2	141	-	-	-	-	-
Critical Hdwy	7.12	6.22	4.12	-	-	-
Critical Hdwy Stg 1	6.12	-	-	-	-	-
Critical Hdwy Stg 2	6.12	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	582	805	1326	-	-	-
Stage 1	769	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	578	805	1326	-	-	-
Mov Cap-2 Maneuver	687	-	-	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1326	-	687	805	-	-
HCM Lane V/C Ratio	0.009	-	0.036	0.037	-	-
HCM Control Delay (s)	7.7	-	10.4	9.6	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.1	-	-

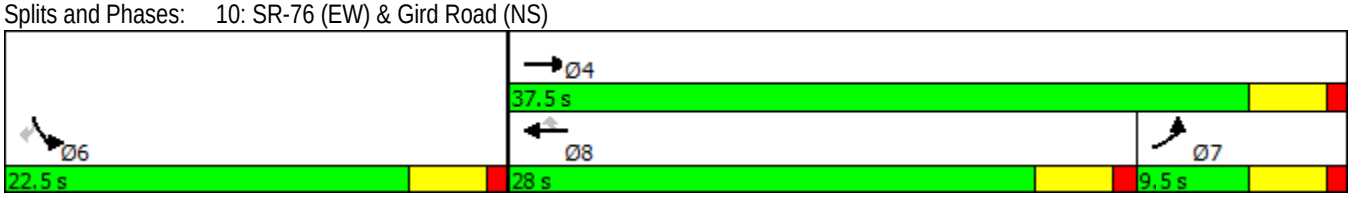


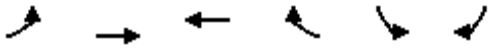
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	793	1120	42	69	161
Future Volume (vph)	68	793	1120	42	69	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	490			490	0	228
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				45		171
Link Speed (mph)		30	30		50	
Link Distance (ft)		3274	12216		4215	
Travel Time (s)		74.4	277.6		57.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	72	844	1191	45	73	171
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	844	1191	45	73	171
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	9.5	37.5	28.0	28.0	22.5	22.5
Total Split (%)	15.8%	62.5%	46.7%	46.7%	37.5%	37.5%
Maximum Green (s)	5.0	33.0	23.5	23.5	18.0	18.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	5.0	36.8	31.1	31.1	7.5	7.5
Actuated g/C Ratio	0.10	0.73	0.62	0.62	0.15	0.15
v/c Ratio	0.41	0.33	0.55	0.05	0.28	0.45
Control Delay	29.1	3.9	9.9	3.3	21.3	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	3.9	9.9	3.3	21.3	8.1
LOS	C	A	A	A	C	A
Approach Delay		5.9	9.6		12.0	
Approach LOS		A	A		B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 50.5			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 10: SR-76 (EW) & Gird Road (NS)

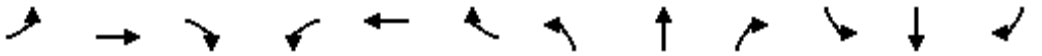




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	68	793	1120	42	69	161
Future Volume (veh/h)	68	793	1120	42	69	161
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	72	844	1191	45	73	171
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	180	2367	1686	754	264	235
Arrive On Green	0.10	0.67	0.48	0.48	0.15	0.15
Sat Flow, veh/h	1774	3632	3632	1583	1774	1583
Grp Volume(v), veh/h	72	844	1191	45	73	171
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1583	1774	1583
Q Serve(g_s), s	1.9	5.1	13.1	0.8	1.8	5.1
Cycle Q Clear(g_c), s	1.9	5.1	13.1	0.8	1.8	5.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	180	2367	1686	754	264	235
V/C Ratio(X)	0.40	0.36	0.71	0.06	0.28	0.73
Avail Cap(c_a), veh/h	180	2367	1686	754	647	578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	3.6	10.2	7.0	18.6	20.0
Incr Delay (d2), s/veh	1.4	0.4	2.5	0.2	0.6	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.6	6.9	0.4	0.9	4.6
LnGrp Delay(d),s/veh	22.2	4.0	12.7	7.1	19.2	24.3
LnGrp LOS	C	A	B	A	B	C
Approach Vol, veh/h		916	1236		244	
Approach Delay, s/veh		5.4	12.5		22.8	
Approach LOS		A	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				37.5		11.8	9.5	28.0
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0		18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				7.1		7.1	3.9	15.1
Green Ext Time (p_c), s				6.8		0.5	0.7	5.1

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	701	105	85	973	89	86	84	55	167	196	88
Future Volume (vph)	58	701	105	85	973	89	86	84	55	167	196	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	503		0	275		0	0		194	0		0
Storage Lanes	1		1	1		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.987				0.850		0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	5019	0	1770	1863	1583	3433	1775	0
Flt Permitted	0.950			0.950			0.416			0.699		
Satd. Flow (perm)	1770	5085	1583	1770	5019	0	775	1863	1583	2526	1775	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			112		16				127		39	
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		12216			518			1079			789	
Travel Time (s)		151.4			6.4			24.5			17.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	62	746	112	90	1035	95	91	89	59	178	209	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	746	112	90	1130	0	91	89	59	178	303	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		53.5	53.5	53.5	42.5	42.5	
Total Split (s)	9.8	24.6	24.6	11.9	26.7		53.5	53.5	53.5	53.5	53.5	
Total Split (%)	10.9%	27.3%	27.3%	13.2%	29.7%		59.4%	59.4%	59.4%	59.4%	59.4%	
Maximum Green (s)	5.3	20.1	20.1	7.4	22.2		49.0	49.0	49.0	49.0	49.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lag	Lag	Lag	Lead	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	
Walk Time (s)		7.0	7.0				7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0				42.0	42.0	42.0	31.0	31.0	
Pedestrian Calls (#/hr)		0	0				0	0	0	0	0	
Act Effct Green (s)	5.4	21.2	21.2	7.2	24.8		13.8	13.8	13.8	13.8	13.8	
Actuated g/C Ratio	0.10	0.40	0.40	0.14	0.47		0.26	0.26	0.26	0.26	0.26	
v/c Ratio	0.34	0.37	0.16	0.38	0.48		0.45	0.18	0.12	0.27	0.62	
Control Delay	30.8	13.8	4.3	28.5	12.5		24.7	16.4	0.8	17.0	21.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	30.8	13.8	4.3	28.5	12.5		24.7	16.4	0.8	17.0	21.2	
LOS	C	B	A	C	B		C	B	A	B	C	
Approach Delay		13.8			13.7			15.7			19.7	
Approach LOS		B			B			B			B	

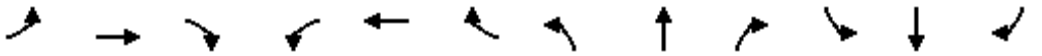
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 53.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 14.9		Intersection LOS: B	
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 11: Old Highway 395 (NS) & SR-76 (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	701	105	85	973	89	86	84	55	167	196	88
Future Volume (veh/h)	58	701	105	85	973	89	86	84	55	167	196	88
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	62	746	112	90	1035	95	91	89	59	178	209	94
Adj No. of Lanes	1	3	1	1	3	0	1	1	1	2	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	1880	585	119	1864	171	325	604	514	951	395	178
Arrive On Green	0.04	0.37	0.37	0.07	0.39	0.39	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1774	5085	1583	1774	4742	435	1072	1863	1583	2395	1218	548
Grp Volume(v), veh/h	62	746	112	90	740	390	91	89	59	178	0	303
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1786	1072	1863	1583	1198	0	1766
Q Serve(g_s), s	2.0	6.1	2.7	2.8	9.6	9.6	4.3	1.9	1.5	3.2	0.0	7.9
Cycle Q Clear(g_c), s	2.0	6.1	2.7	2.8	9.6	9.6	12.2	1.9	1.5	5.1	0.0	7.9
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	77	1880	585	119	1333	702	325	604	514	951	0	573
V/C Ratio(X)	0.80	0.40	0.19	0.76	0.55	0.56	0.28	0.15	0.11	0.19	0.00	0.53
Avail Cap(c_a), veh/h	166	1880	585	232	1333	702	908	1616	1374	2252	0	1532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.8	13.2	12.1	25.9	13.3	13.3	20.5	13.5	13.4	15.4	0.0	15.6
Incr Delay (d2), s/veh	17.3	0.6	0.7	9.4	1.7	3.2	0.5	0.1	0.1	0.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.9	1.3	1.7	4.7	5.3	1.3	1.0	0.7	1.1	0.0	3.9
LnGrp Delay(d),s/veh	44.1	13.8	12.8	35.3	15.0	16.5	21.0	13.6	13.5	15.5	0.0	16.3
LnGrp LOS	D	B	B	D	B	B	C	B	B	B		B
Approach Vol, veh/h		920			1220			239			481	
Approach Delay, s/veh		15.7			17.0			16.4			16.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		22.8	8.3	25.4		22.8	7.0	26.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		49.0	7.4	20.1		49.0	5.3	22.2
Max Q Clear Time (g_c+I1), s		14.2	4.8	8.1		9.9	4.0	11.6
Green Ext Time (p_c), s		4.1	0.0	3.9		4.2	0.0	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	16.3
HCM 2010 LOS	B



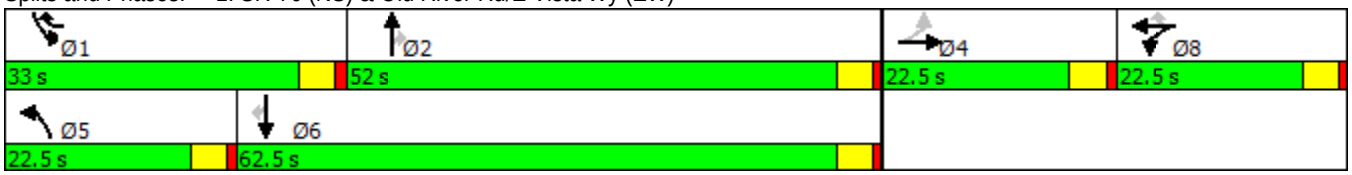
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	37	82	231	31	664	62	1841	507	716	1152	19
Future Volume (vph)	19	37	82	231	31	664	62	1841	507	716	1152	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	8
Storage Length (ft)	0		0	273		0	833		540	382		100
Storage Lanes	0		0	1		1	1		1	2		1
Taper Length (ft)	25			25			25			120		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	*1.00	1.00	*1.00	*1.00	1.00
Frt		0.911				0.850			0.850			0.850
Flt Protected		0.993		0.950	0.963		0.950			0.950		
Satd. Flow (prot)	0	3202	0	1681	1704	1583	1770	5588	1583	3539	5588	1372
Flt Permitted		0.601		0.950	0.963		0.950			0.950		
Satd. Flow (perm)	0	1938	0	1681	1704	1583	1770	5588	1583	3539	5588	1372
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		89				248			551			88
Link Speed (mph)		50			30			30			30	
Link Distance (ft)		948			495			1112			1560	
Travel Time (s)		12.9			11.3			25.3			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	40	89	251	34	722	67	2001	551	778	1252	21
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	150	0	141	144	722	67	2001	551	778	1252	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	8	1	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4					8			2			6
Detector Phase	4	4		8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5	33.0	22.5	52.0	52.0	33.0	62.5	62.5
Total Split (%)	17.3%	17.3%		17.3%	17.3%	25.4%	17.3%	40.0%	40.0%	25.4%	48.1%	48.1%
Maximum Green (s)	18.0	18.0		18.0	18.0	28.5	18.0	47.5	47.5	28.5	58.0	58.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		9.8		14.5	14.5	47.6	9.9	47.6	47.6	28.6	68.7	68.7
Actuated g/C Ratio		0.08		0.12	0.12	0.40	0.08	0.40	0.40	0.24	0.58	0.58
v/c Ratio		0.62		0.69	0.69	0.92	0.46	0.89	0.57	0.91	0.39	0.03
Control Delay		34.7		67.9	68.1	40.7	62.9	40.0	4.8	60.6	15.9	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		34.7		67.9	68.1	40.7	62.9	40.0	4.8	60.6	15.9	0.1
LOS		C		E	E	D	E	D	A	E	B	A
Approach Delay		34.7			48.4			33.2			32.7	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 118.6			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 35.7		Intersection LOS: D	
Intersection Capacity Utilization 92.2%		ICU Level of Service F	
Analysis Period (min) 15			

* User Entered Value

Splits and Phases: 1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)



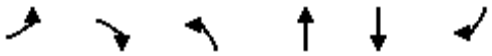
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	37	82	231	31	664	62	1841	507	716	1152	19
Future Volume (veh/h)	19	37	82	231	31	664	62	1841	507	716	1152	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1788
Adj Flow Rate, veh/h	21	40	89	275	0	722	67	2001	551	778	1252	21
Adj No. of Lanes	0	2	0	2	0	1	1	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	47	90	118	529	0	606	97	2199	623	829	3200	870
Arrive On Green	0.07	0.07	0.07	0.15	0.00	0.15	0.05	0.39	0.39	0.23	0.57	0.57
Sat Flow, veh/h	630	1201	1583	3548	0	1583	1774	5588	1583	3548	5588	1520
Grp Volume(v), veh/h	61	0	89	275	0	722	67	2001	551	778	1252	21
Grp Sat Flow(s),veh/h/ln	1831	0	1583	1774	0	1583	1774	1863	1583	1774	1863	1520
Q Serve(g_s), s	3.8	0.0	6.7	8.6	0.0	18.0	4.5	40.8	39.1	26.0	14.9	0.7
Cycle Q Clear(g_c), s	3.8	0.0	6.7	8.6	0.0	18.0	4.5	40.8	39.1	26.0	14.9	0.7
Prop In Lane	0.34		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	0	118	529	0	606	97	2199	623	829	3200	870
V/C Ratio(X)	0.45	0.00	0.75	0.52	0.00	1.19	0.69	0.91	0.88	0.94	0.39	0.02
Avail Cap(c_a), veh/h	273	0	236	529	0	606	265	2199	623	838	3200	870
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	0.0	54.8	47.4	0.0	37.3	56.1	34.6	34.0	45.4	14.2	11.2
Incr Delay (d2), s/veh	2.3	0.0	9.3	0.9	0.0	101.9	8.6	7.0	16.7	17.9	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	3.2	4.3	0.0	37.3	2.4	22.4	19.9	14.8	7.8	0.3
LnGrp Delay(d),s/veh	55.7	0.0	64.0	48.3	0.0	139.1	64.7	41.6	50.8	63.4	14.6	11.2
LnGrp LOS	E		E	D		F	E	D	D	E	B	B
Approach Vol, veh/h		150			997			2619			2051	
Approach Delay, s/veh		60.6			114.1			44.1			33.0	
Approach LOS		E			F			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	32.7	52.0		13.5	11.1	73.6		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	28.5	47.5		18.0	18.0	58.0		18.0
Max Q Clear Time (g_c+I1), s	28.0	42.8		8.7	6.5	16.9		20.0
Green Ext Time (p_c), s	0.2	4.6		0.4	0.1	37.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	52.6
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	206	215	118	2376	1493	177
Future Volume (vph)	206	215	118	2376	1493	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	84	0	756			755
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		185				181
Link Speed (mph)	30			30	30	
Link Distance (ft)	1509			1887	2556	
Travel Time (s)	34.3			42.9	58.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	210	219	120	2424	1523	181
Shared Lane Traffic (%)						
Lane Group Flow (vph)	210	219	120	2424	1523	181
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	42.5	42.5	9.5	22.5	30.5	30.5
Total Split (s)	42.5	42.5	16.7	87.5	70.8	70.8
Total Split (%)	32.7%	32.7%	12.8%	67.3%	54.5%	54.5%
Maximum Green (s)	38.0	38.0	12.2	83.0	66.3	66.3
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	31.0	31.0			19.0	19.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	18.2	18.2	11.3	83.2	67.4	67.4
Actuated g/C Ratio	0.16	0.16	0.10	0.75	0.61	0.61
v/c Ratio	0.72	0.53	0.67	0.91	0.71	0.17
Control Delay	57.9	13.9	67.1	18.4	17.9	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	13.9	67.1	18.4	17.9	2.1
LOS	E	B	E	B	B	A
Approach Delay	35.4			20.7	16.3	
Approach LOS	D			C	B	

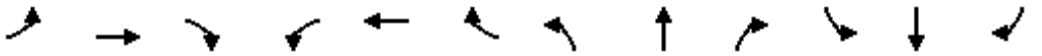
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 110.4			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 20.4		Intersection LOS: C	
Intersection Capacity Utilization 84.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: SR-76 (NS) & North River Rd (EW)

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	206	215	118	2376	1493	177
Future Volume (veh/h)	206	215	118	2376	1493	177
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	210	219	120	2424	1523	181
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	292	260	147	2668	2229	997
Arrive On Green	0.16	0.16	0.08	0.75	0.63	0.63
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	210	219	120	2424	1523	181
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	12.4	14.8	7.3	58.9	30.8	5.3
Cycle Q Clear(g_c), s	12.4	14.8	7.3	58.9	30.8	5.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	292	260	147	2668	2229	997
V/C Ratio(X)	0.72	0.84	0.81	0.91	0.68	0.18
Avail Cap(c_a), veh/h	612	546	197	2668	2229	997
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	44.6	49.6	10.6	13.2	8.5
Incr Delay (d2), s/veh	3.3	7.2	17.2	5.9	1.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	12.8	4.3	30.1	15.3	2.4
LnGrp Delay(d),s/veh	46.9	51.8	66.8	16.4	15.0	8.9
LnGrp LOS	D	D	E	B	B	A
Approach Vol, veh/h	429			2544	1704	
Approach Delay, s/veh	49.4			18.8	14.3	
Approach LOS	D			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.5		22.6	13.7	73.8		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		83.0		38.0	12.2	66.3		
Max Q Clear Time (g_c+I1), s		60.9		16.8	9.3	32.8		
Green Ext Time (p_c), s		21.8		1.3	0.1	32.8		

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	B



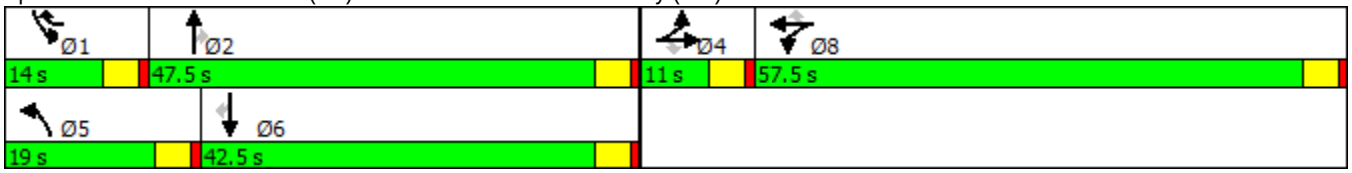
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	79	142	121	124	390	212	2088	194	249	1357	73
Future Volume (vph)	145	79	142	121	124	390	212	2088	194	249	1357	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		219	190		227	834		478	600		476
Storage Lanes	2		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*1.00	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	5588	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1863	1583	1770	1863	1583	1770	5588	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148			88			202			126
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		480			1346			1011			2331	
Travel Time (s)		6.5			18.4			23.0			53.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	151	82	148	126	129	406	221	2175	202	259	1414	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	82	148	126	129	406	221	2175	202	259	1414	76
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases			4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	9.5	56.5	56.5	9.5	9.5	9.5	9.5	9.5	39.5	39.5
Total Split (s)	11.0	11.0	11.0	57.5	57.5	14.0	19.0	47.5	47.5	14.0	42.5	42.5
Total Split (%)	8.5%	8.5%	8.5%	44.2%	44.2%	10.8%	14.6%	36.5%	36.5%	10.8%	32.7%	32.7%
Maximum Green (s)	6.5	6.5	6.5	53.0	53.0	9.5	14.5	43.0	43.0	9.5	38.0	38.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)				7.0	7.0						7.0	7.0
Flash Dont Walk (s)				45.0	45.0						28.0	28.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)	6.5	6.5	6.5	11.6	11.6	25.6	14.5	43.0	43.0	9.5	38.0	38.0
Actuated g/C Ratio	0.07	0.07	0.07	0.13	0.13	0.29	0.16	0.49	0.49	0.11	0.43	0.43
v/c Ratio	0.60	0.60	0.58	0.55	0.53	0.78	0.76	0.80	0.23	0.70	0.65	0.10
Control Delay	51.2	60.3	17.4	45.2	44.1	34.1	54.8	22.4	2.9	50.3	22.1	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	60.3	17.4	45.2	44.1	34.1	54.8	22.4	2.9	50.3	22.1	1.1
LOS	D	E	B	D	D	C	D	C	A	D	C	A
Approach Delay		40.0			38.2			23.7			25.3	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 88.6			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 27.2		Intersection LOS: C	
Intersection Capacity Utilization 79.9%		ICU Level of Service D	
Analysis Period (min) 15			

* User Entered Value

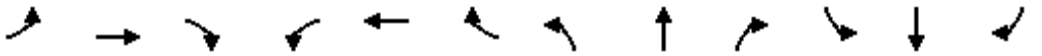
Splits and Phases: 3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	79	142	121	124	390	212	2088	194	249	1357	73
Future Volume (veh/h)	145	79	142	121	124	390	212	2088	194	249	1357	73
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	151	82	148	126	129	406	221	2175	202	259	1414	76
Adj No. of Lanes	2	1	1	1	1	1	1	3	1	2	3	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	116	98	469	493	562	246	2296	650	312	1846	575
Arrive On Green	0.06	0.06	0.06	0.26	0.26	0.26	0.14	0.41	0.41	0.09	0.36	0.36
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	1774	5588	1583	3442	5085	1583
Grp Volume(v), veh/h	151	82	148	126	129	406	221	2175	202	259	1414	76
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1774	1863	1583	1721	1695	1583
Q Serve(g_s), s	4.5	4.5	6.5	5.9	5.7	23.3	12.8	39.3	9.0	7.7	25.7	3.4
Cycle Q Clear(g_c), s	4.5	4.5	6.5	5.9	5.7	23.3	12.8	39.3	9.0	7.7	25.7	3.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	214	116	98	469	493	562	246	2296	650	312	1846	575
V/C Ratio(X)	0.71	0.71	1.51	0.27	0.26	0.72	0.90	0.95	0.31	0.83	0.77	0.13
Avail Cap(c_a), veh/h	214	116	98	898	943	945	246	2296	650	312	1846	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	48.2	49.1	30.5	30.4	29.3	44.4	29.7	20.8	46.8	29.4	22.3
Incr Delay (d2), s/veh	10.2	18.1	272.8	0.3	0.3	1.8	32.2	10.0	1.2	16.8	3.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.9	10.3	2.9	3.0	10.4	8.5	22.3	4.2	4.4	12.6	1.6
LnGrp Delay(d),s/veh	58.3	66.3	321.9	30.8	30.7	31.0	76.6	39.7	22.1	63.6	32.5	22.8
LnGrp LOS	E	E	F	C	C	C	E	D	C	E	C	C
Approach Vol, veh/h		381			661			2598			1749	
Approach Delay, s/veh		162.4			30.9			41.5			36.7	
Approach LOS		F			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.0	47.5		11.0	19.0	42.5		32.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	9.5	43.0		6.5	14.5	38.0		53.0
Max Q Clear Time (g_c+I1), s	9.7	41.3		8.5	14.8	27.7		25.3
Green Ext Time (p_c), s	0.0	1.7		0.0	0.0	10.1		2.4

Intersection Summary	
HCM 2010 Ctrl Delay	47.2
HCM 2010 LOS	D



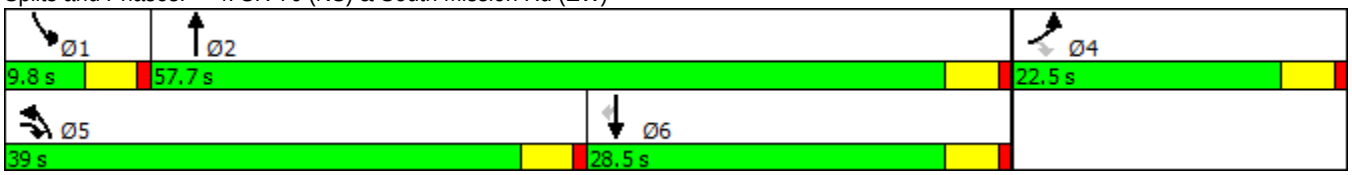
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	0	718	0	0	0	1346	1264	0	19	954	106
Future Volume (vph)	119	0	718	0	0	0	1346	1264	0	19	954	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		0	439		0	495		0
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25			25			120			25		
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00	1.00	*1.00	0.95	1.00	1.00	*1.00	1.00
Frt			0.850									0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3433	0	2787	0	0	0	3539	3539	0	1770	3725	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	0	2787	0	0	0	3539	3539	0	1770	3725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			18									127
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			263			2331			1378	
Travel Time (s)		19.9			6.0			53.0			31.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	124	0	748	0	0	0	1402	1317	0	20	994	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	0	748	0	0	0	1402	1317	0	20	994	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1		1				1	2		1	2	1
Detector Template	Left		Right				Left	Thru		Left	Thru	Right
Leading Detector (ft)	20		20				20	100		20	100	20
Trailing Detector (ft)	0		0				0	0		0	0	0
Detector 1 Position(ft)	0		0				0	0		0	0	0
Detector 1 Size(ft)	20		20				20	6		20	6	20
Detector 1 Type	Cl+Ex		Cl+Ex				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot		pm+ov				Prot	NA		Prot	NA	Perm
Protected Phases	4		5				5	2		1	6	
Permitted Phases			4									6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4		5				5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0		5.0				5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		9.5				9.5	22.5		9.5	22.5	22.5
Total Split (s)	22.5		39.0				39.0	57.7		9.8	28.5	28.5
Total Split (%)	25.0%		43.3%				43.3%	64.1%		10.9%	31.7%	31.7%
Maximum Green (s)	18.0		34.5				34.5	53.2		5.3	24.0	24.0
Yellow Time (s)	3.5		3.5				3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0				1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5				4.5	4.5		4.5	4.5	4.5
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0		3.0	3.0	3.0
Recall Mode	None		None				None	Max		None	Max	Max
Walk Time (s)	7.0							7.0			7.0	7.0
Flash Dont Walk (s)	11.0							11.0			11.0	11.0
Pedestrian Calls (#/hr)	0							0			0	0
Act Effct Green (s)	8.2		44.9				34.7	60.6		5.3	24.1	24.1
Actuated g/C Ratio	0.10		0.57				0.44	0.78		0.07	0.31	0.31
v/c Ratio	0.34		0.46				0.89	0.48		0.17	0.86	0.19
Control Delay	35.9		10.3				30.2	5.8		39.5	36.0	4.4
Queue Delay	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Delay	35.9		10.3				30.2	5.8		39.5	36.0	4.4
LOS	D		B				C	A		D	D	A
Approach Delay		13.9						18.4			33.0	
Approach LOS		B						B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78.1			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 21.0		Intersection LOS: C	
Intersection Capacity Utilization 79.0%		ICU Level of Service D	
Analysis Period (min) 15			

* User Entered Value

Splits and Phases: 4: SR-76 (NS) & South Mission Rd (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	0	718	0	0	0	1346	1264	0	19	954	106
Future Volume (veh/h)	119	0	718	0	0	0	1346	1264	0	19	954	106
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	124	0	748				1402	1317	0	20	994	110
Adj No. of Lanes	2	0	2				2	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	2				2	2	0	2	2	2
Cap, veh/h	648	0	1609				1380	2257	0	39	1008	428
Arrive On Green	0.19	0.00	0.19				0.39	0.64	0.00	0.02	0.27	0.27
Sat Flow, veh/h	3442	0	2787				3548	3632	0	1774	3725	1583
Grp Volume(v), veh/h	124	0	748				1402	1317	0	20	994	110
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1774	1770	0	1774	1863	1583
Q Serve(g_s), s	2.7	0.0	13.8				34.5	19.1	0.0	1.0	23.5	4.8
Cycle Q Clear(g_c), s	2.7	0.0	13.8				34.5	19.1	0.0	1.0	23.5	4.8
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	648	0	1609				1380	2257	0	39	1008	428
V/C Ratio(X)	0.19	0.00	0.47				1.02	0.58	0.00	0.51	0.99	0.26
Avail Cap(c_a), veh/h	698	0	1649				1380	2257	0	106	1008	428
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	10.8				27.1	9.3	0.0	42.9	32.2	25.4
Incr Delay (d2), s/veh	0.1	0.0	0.2				28.3	1.1	0.0	10.1	25.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	13.1				22.1	9.5	0.0	0.6	15.5	2.3
LnGrp Delay(d),s/veh	30.5	0.0	11.0				55.4	10.4	0.0	53.0	57.4	26.8
LnGrp LOS	C		B				F	B		D	E	C
Approach Vol, veh/h		872						2719			1124	
Approach Delay, s/veh		13.8						33.6			54.3	
Approach LOS		B						C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	6.4	61.1		21.2	39.0	28.5		
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s	5.3	53.2		18.0	34.5	24.0		
Max Q Clear Time (g_c+I1), s	3.0	21.1		15.8	36.5	25.5		
Green Ext Time (p_c), s	0.0	23.4		0.9	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	449	72	0	520	116	0
Future Volume (vph)	449	72	0	520	116	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981					
Flt Protected					0.950	
Satd. Flow (prot)	1827	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1827	0	0	1863	1770	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	1346			174	267	
Travel Time (s)	18.4			2.4	6.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	473	76	0	547	122	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	549	0	0	547	122	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	449	72	0	520	116	0
Future Vol, veh/h	449	72	0	520	116	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	473	76	0	547	122	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	548	0	1058	511
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	547	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1021	-	249	563
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	580	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1021	-	249	563
Mov Cap-2 Maneuver	-	-	-	-	249	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	580	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	32.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	249	-	-	1021	-
HCM Lane V/C Ratio	0.49	-	-	-	-
HCM Control Delay (s)	32.6	-	-	0	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	2.5	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	449	0	51	520	0	57
Future Volume (vph)	449	0	51	520	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.996		
Satd. Flow (prot)	1863	0	0	1855	1611	0
Flt Permitted				0.996		
Satd. Flow (perm)	1863	0	0	1855	1611	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	174			723	234	
Travel Time (s)	2.4			9.9	5.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	473	0	54	547	0	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	473	0	0	601	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			

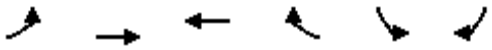
Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	449	0	51	520	0	57
Future Vol, veh/h	449	0	51	520	0	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	473	0	54	547	0	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	473	0	1128	473
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	655	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1089	-	226	591
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	517	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1089	-	210	591
Mov Cap-2 Maneuver	-	-	-	-	210	-
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	480	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	591	-	-	1089	-
HCM Lane V/C Ratio	0.102	-	-	0.049	-
HCM Control Delay (s)	11.8	-	-	8.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	111	396	472	8	10	99
Future Volume (vph)	111	396	472	8	10	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	68
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected		0.989			0.950	
Satd. Flow (prot)	0	1842	1863	1583	1770	1583
Flt Permitted		0.989			0.950	
Satd. Flow (perm)	0	1842	1863	1583	1770	1583
Link Speed (mph)		50	50		45	
Link Distance (ft)		951	613		780	
Travel Time (s)		13.0	8.4		11.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	119	426	508	9	11	106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	545	508	9	11	106
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			

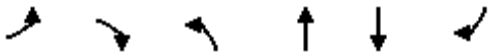
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	111	396	472	8	10	99
Future Vol, veh/h	111	396	472	8	10	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	0	68
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	119	426	508	9	11	106

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	508	0	-	0	1173	508
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	665	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1057	-	-	-	212	565
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	511	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1057	-	-	-	181	565
Mov Cap-2 Maneuver	-	-	-	-	181	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	436	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1057	-	-	-	181	565
HCM Lane V/C Ratio	0.113	-	-	-	0.059	0.188
HCM Control Delay (s)	8.8	0	-	-	26.1	12.8
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.2	0.7

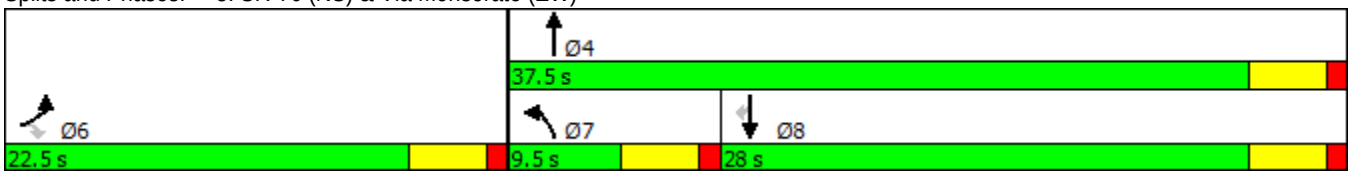


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	10	6	1466	1046	61
Future Volume (vph)	16	10	6	1466	1046	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	550			500
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		11				66
Link Speed (mph)	30			30	30	
Link Distance (ft)	1025			6793	3274	
Travel Time (s)	23.3			154.4	74.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	11	6	1576	1125	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	11	6	1576	1125	66
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	6		7	4	8	
Permitted Phases		6				8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	6	6	7	4	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	9.5	37.5	28.0	28.0
Total Split (%)	37.5%	37.5%	15.8%	62.5%	46.7%	46.7%
Maximum Green (s)	18.0	18.0	5.0	33.0	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	18.0	18.0	5.0	31.8	30.0	30.0
Actuated g/C Ratio	0.31	0.31	0.08	0.54	0.51	0.51
v/c Ratio	0.03	0.02	0.04	0.82	0.62	0.08
Control Delay	15.2	8.8	26.0	15.8	13.5	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	8.8	26.0	15.8	13.5	3.5
LOS	B	A	C	B	B	A
Approach Delay	12.7			15.9	12.9	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 58.9			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			

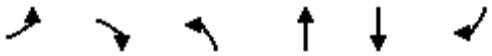
Splits and Phases: 8: SR-76 (NS) & Via Monserate (EW)



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	10	6	1466	1046	61
Future Volume (veh/h)	16	10	6	1466	1046	61
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	17	11	6	1576	1125	66
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	553	494	14	1884	1580	707
Arrive On Green	0.31	0.31	0.01	0.53	0.45	0.45
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	17	11	6	1576	1125	66
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	0.4	0.3	0.2	21.7	14.9	1.4
Cycle Q Clear(g_c), s	0.4	0.3	0.2	21.7	14.9	1.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	553	494	14	1884	1580	707
V/C Ratio(X)	0.03	0.02	0.43	0.84	0.71	0.09
Avail Cap(c_a), veh/h	553	494	154	2023	1580	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	13.8	28.5	11.4	13.0	9.2
Incr Delay (d2), s/veh	0.1	0.1	19.0	3.1	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.2	11.1	7.5	0.6
LnGrp Delay(d),s/veh	13.9	13.8	47.5	14.5	14.5	9.3
LnGrp LOS	B	B	D	B	B	A
Approach Vol, veh/h	28			1582	1191	
Approach Delay, s/veh	13.9			14.6	14.2	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				35.2		22.5	5.0	30.3
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0		18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				23.7		2.4	2.2	16.9
Green Ext Time (p_c), s				7.0		0.0	0.0	6.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	7	19	282	120	24
Future Volume (vph)	16	7	19	282	120	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.977	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1820	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1820	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	531			4215	454	
Travel Time (s)	12.1			95.8	10.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	8	20	303	129	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	8	20	303	155	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane					Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.8%		ICU Level of Service A	
Analysis Period (min) 15			

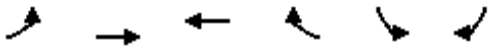
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	7	19	282	120	24
Future Vol, veh/h	16	7	19	282	120	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	8	20	303	129	26

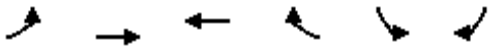
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	486	142	155	0	-	0
Stage 1	142	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	540	906	1425	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	718	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	532	906	1425	-	-	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	708	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1425	-	648	906	-	-
HCM Lane V/C Ratio	0.014	-	0.027	0.008	-	-
HCM Control Delay (s)	7.6	-	10.7	9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0	-	-



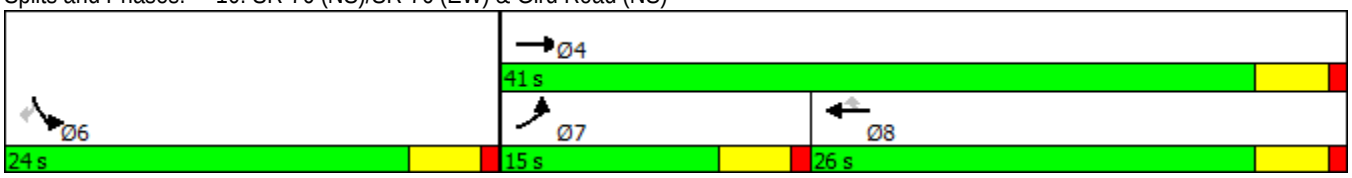
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	217	1232	1042	67	26	101
Future Volume (vph)	217	1232	1042	67	26	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	490			490	0	228
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				68		102
Link Speed (mph)		30	30		50	
Link Distance (ft)		3274	12216		4215	
Travel Time (s)		74.4	277.6		57.5	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	219	1244	1053	68	26	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	219	1244	1053	68	26	102
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6

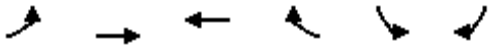


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	15.0	41.0	26.0	26.0	24.0	24.0
Total Split (%)	23.1%	63.1%	40.0%	40.0%	36.9%	36.9%
Maximum Green (s)	10.5	36.5	21.5	21.5	19.5	19.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	10.2	40.3	24.7	24.7	6.6	6.6
Actuated g/C Ratio	0.19	0.76	0.47	0.47	0.12	0.12
v/c Ratio	0.65	0.46	0.64	0.09	0.12	0.36
Control Delay	30.4	4.0	14.3	3.7	21.2	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	4.0	14.3	3.7	21.2	9.4
LOS	C	A	B	A	C	A
Approach Delay		8.0	13.6		11.8	
Approach LOS		A	B		B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 65			
Actuated Cycle Length: 53.1			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 56.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 10: SR-76 (NS)/SR-76 (EW) & Gird Road (NS)

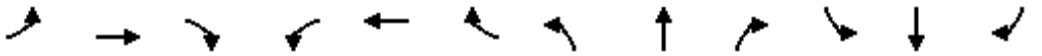




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	217	1232	1042	67	26	101
Future Volume (veh/h)	217	1232	1042	67	26	101
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	219	1244	1053	68	26	102
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	274	2585	1719	769	159	142
Arrive On Green	0.15	0.73	0.49	0.49	0.09	0.09
Sat Flow, veh/h	1774	3632	3632	1583	1774	1583
Grp Volume(v), veh/h	219	1244	1053	68	26	102
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1583	1774	1583
Q Serve(g_s), s	6.0	7.3	10.9	1.2	0.7	3.1
Cycle Q Clear(g_c), s	6.0	7.3	10.9	1.2	0.7	3.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	274	2585	1719	769	159	142
V/C Ratio(X)	0.80	0.48	0.61	0.09	0.16	0.72
Avail Cap(c_a), veh/h	373	2585	1719	769	692	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	2.8	9.4	6.9	21.0	22.1
Incr Delay (d2), s/veh	8.5	0.6	1.6	0.2	0.5	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	3.7	5.7	0.5	0.4	2.9
LnGrp Delay(d),s/veh	28.8	3.4	11.0	7.1	21.5	28.8
LnGrp LOS	C	A	B	A	C	C
Approach Vol, veh/h		1463	1121		128	
Approach Delay, s/veh		7.2	10.8		27.3	
Approach LOS		A	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				41.0		9.0	12.2	28.8
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				36.5		19.5	10.5	21.5
Max Q Clear Time (g_c+I1), s				9.3		5.1	8.0	12.9
Green Ext Time (p_c), s				20.3		0.3	0.2	7.6

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

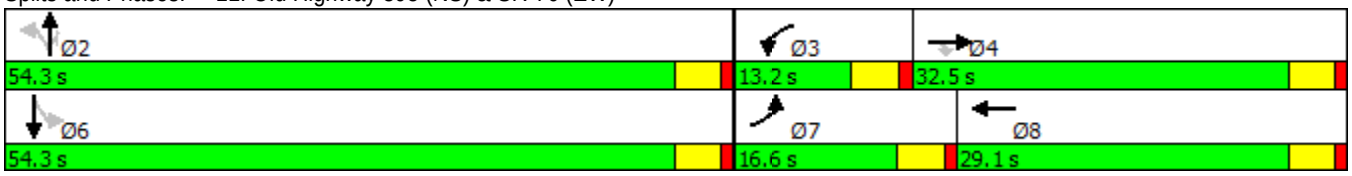


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	984	78	57	892	450	102	252	91	170	105	87
Future Volume (vph)	204	984	78	57	892	450	102	252	91	170	105	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	503		0	275		0	0		194	0		0
Storage Lanes	1		1	1		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.950				0.850		0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	4831	0	1770	1863	1583	3433	1736	0
Flt Permitted	0.950			0.950			0.545			0.417		
Satd. Flow (perm)	1770	5085	1583	1770	4831	0	1015	1863	1583	1507	1736	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81		121				95		60	
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		12216			518			1079			789	
Travel Time (s)		151.4			6.4			24.5			17.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	213	1025	81	59	929	469	106	263	95	177	109	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	213	1025	81	59	1398	0	106	263	95	177	200	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		53.5	53.5	53.5	42.5	42.5	
Total Split (s)	16.6	32.5	32.5	13.2	29.1		54.3	54.3	54.3	54.3	54.3	
Total Split (%)	16.6%	32.5%	32.5%	13.2%	29.1%		54.3%	54.3%	54.3%	54.3%	54.3%	
Maximum Green (s)	12.1	28.0	28.0	8.7	24.6		49.8	49.8	49.8	49.8	49.8	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	
Walk Time (s)		7.0	7.0				7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0				42.0	42.0	42.0	31.0	31.0	
Pedestrian Calls (#/hr)		0	0				0	0	0	0	0	
Act Effct Green (s)	12.1	34.0	34.0	7.3	24.7		14.7	14.7	14.7	14.7	14.7	
Actuated g/C Ratio	0.19	0.52	0.52	0.11	0.38		0.23	0.23	0.23	0.23	0.23	
v/c Ratio	0.65	0.39	0.09	0.30	0.73		0.46	0.63	0.22	0.52	0.46	
Control Delay	36.8	12.0	4.1	31.6	19.1		28.5	29.5	6.3	27.6	18.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	36.8	12.0	4.1	31.6	19.1		28.5	29.5	6.3	27.6	18.1	
LOS	D	B	A	C	B		C	C	A	C	B	
Approach Delay		15.5			19.6			24.5			22.6	
Approach LOS		B			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 65.1			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 19.1		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 11: Old Highway 395 (NS) & SR-76 (EW)

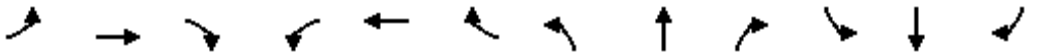


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	204	984	78	57	892	450	102	252	91	170	105	87
Future Volume (veh/h)	204	984	78	57	892	450	102	252	91	170	105	87
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	212	1025	81	59	929	469	106	262	95	177	109	91
Adj No. of Lanes	1	3	1	1	3	0	1	1	1	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	2313	720	87	1219	569	348	556	473	574	281	234
Arrive On Green	0.14	0.45	0.45	0.05	0.36	0.36	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1774	5085	1583	1774	3390	1583	1178	1863	1583	1979	940	785
Grp Volume(v), veh/h	212	1025	81	59	929	469	106	262	95	177	0	200
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1178	1863	1583	990	0	1724
Q Serve(g_s), s	7.9	9.4	2.0	2.2	16.5	18.4	5.4	7.9	3.1	5.5	0.0	6.3
Cycle Q Clear(g_c), s	7.9	9.4	2.0	2.2	16.5	18.4	11.7	7.9	3.1	13.3	0.0	6.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	256	2313	720	87	1219	569	348	556	473	574	0	515
V/C Ratio(X)	0.83	0.44	0.11	0.67	0.76	0.82	0.30	0.47	0.20	0.31	0.00	0.39
Avail Cap(c_a), veh/h	314	2313	720	226	1219	569	854	1356	1153	1424	0	1255
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.4	12.7	10.7	32.0	19.3	19.9	23.7	19.6	17.9	25.0	0.0	19.0
Incr Delay (d2), s/veh	14.0	0.6	0.3	8.7	4.5	12.7	0.5	0.6	0.2	0.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	4.5	0.9	1.3	8.4	10.0	1.8	4.1	1.3	1.5	0.0	3.1
LnGrp Delay(d),s/veh	42.4	13.3	11.0	40.7	23.8	32.6	24.2	20.2	18.1	25.3	0.0	19.5
LnGrp LOS	D	B	B	D	C	C	C	C	B	C		B
Approach Vol, veh/h		1318			1457			463			377	
Approach Delay, s/veh		17.9			27.4			20.7			22.2	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.9	7.9	35.6		24.9	14.4	29.1
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		49.8	8.7	28.0		49.8	12.1	24.6
Max Q Clear Time (g_c+I1), s		13.7	4.2	11.4		15.3	9.9	20.4
Green Ext Time (p_c), s		5.1	0.0	12.8		5.1	0.1	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Year 2025 With Project

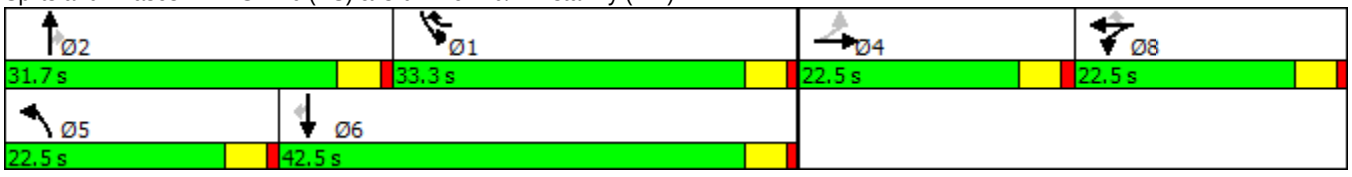


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	63	73	281	18	529	20	799	336	608	1758	18
Future Volume (vph)	5	63	73	281	18	529	20	799	336	608	1758	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	8
Storage Length (ft)	0		0	273		0	833		540	382		100
Storage Lanes	0		0	1		1	1		1	2		1
Taper Length (ft)	25			25			25			120		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt		0.922				0.850			0.850			0.850
Flt Protected		0.998		0.950	0.958		0.950			0.950		
Satd. Flow (prot)	0	3257	0	1681	1695	1583	1770	5085	1583	3433	5085	1372
Flt Permitted		0.595		0.950	0.958		0.950			0.950		
Satd. Flow (perm)	0	1942	0	1681	1695	1583	1770	5085	1583	3433	5085	1372
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76				470			350			104
Link Speed (mph)		50			30			30			30	
Link Distance (ft)		948			495			1112			1560	
Travel Time (s)		12.9			11.3			25.3			35.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	5	66	76	293	19	551	21	832	350	633	1831	19
Shared Lane Traffic (%)				47%								
Lane Group Flow (vph)	0	147	0	155	157	551	21	832	350	633	1831	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	8	1	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4					8			2			6
Detector Phase	4	4		8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5	33.3	22.5	31.7	31.7	33.3	42.5	42.5
Total Split (%)	20.5%	20.5%		20.5%	20.5%	30.3%	20.5%	28.8%	28.8%	30.3%	38.6%	38.6%
Maximum Green (s)	18.0	18.0		18.0	18.0	28.8	18.0	27.2	27.2	28.8	38.0	38.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		8.4		13.4	13.4	36.5	6.7	27.6	27.6	23.1	50.8	50.8
Actuated g/C Ratio		0.09		0.15	0.15	0.40	0.07	0.30	0.30	0.25	0.56	0.56
v/c Ratio		0.59		0.62	0.63	0.60	0.16	0.54	0.48	0.73	0.64	0.02
Control Delay		31.9		49.5	49.5	4.8	46.1	29.6	5.9	36.8	17.3	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		31.9		49.5	49.5	4.8	46.1	29.6	5.9	36.8	17.3	0.1
LOS		C		D	D	A	D	C	A	D	B	A
Approach Delay		31.9			20.9			23.0			22.1	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 90.8			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 22.4		Intersection LOS: C	
Intersection Capacity Utilization 65.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)



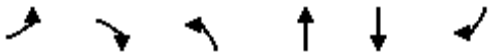
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	63	73	281	18	529	20	799	336	608	1758	18
Future Volume (veh/h)	5	63	73	281	18	529	20	799	336	608	1758	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1788
Adj Flow Rate, veh/h	5	66	76	307	0	551	21	832	350	633	1831	19
Adj No. of Lanes	0	2	0	2	0	1	1	3	1	2	3	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	10	128	117	539	0	603	107	1668	519	788	2526	755
Arrive On Green	0.07	0.07	0.07	0.15	0.00	0.15	0.06	0.33	0.33	0.23	0.50	0.50
Sat Flow, veh/h	131	1725	1583	3548	0	1583	1774	5085	1583	3442	5085	1520
Grp Volume(v), veh/h	71	0	76	307	0	551	21	832	350	633	1831	19
Grp Sat Flow(s),veh/h/ln	1856	0	1583	1774	0	1583	1774	1695	1583	1721	1695	1520
Q Serve(g_s), s	3.1	0.0	3.9	6.7	0.0	8.4	0.9	10.9	15.8	14.4	23.5	0.5
Cycle Q Clear(g_c), s	3.1	0.0	3.9	6.7	0.0	8.4	0.9	10.9	15.8	14.4	23.5	0.5
Prop In Lane	0.07		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	0	117	539	0	603	107	1668	519	788	2526	755
V/C Ratio(X)	0.52	0.00	0.65	0.57	0.00	0.91	0.20	0.50	0.67	0.80	0.72	0.03
Avail Cap(c_a), veh/h	403	0	344	770	0	706	385	1668	519	1196	2526	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	0.0	37.3	32.6	0.0	24.4	37.0	22.4	24.0	30.2	16.4	10.6
Incr Delay (d2), s/veh	3.0	0.0	5.9	1.0	0.0	14.9	0.9	1.1	6.8	2.4	1.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	1.9	3.3	0.0	13.1	0.5	5.2	7.9	7.1	11.3	0.2
LnGrp Delay(d),s/veh	40.0	0.0	43.3	33.6	0.0	39.3	37.9	23.4	30.9	32.6	18.3	10.7
LnGrp LOS	D		D	C		D	D	C	C	C	B	B
Approach Vol, veh/h		147			858			1203			2483	
Approach Delay, s/veh		41.7			37.3			25.9			21.8	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	23.5	31.7		10.6	9.5	45.7		17.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	28.8	27.2		18.0	18.0	38.0		18.0
Max Q Clear Time (g_c+I1), s	16.4	17.8		5.9	2.9	25.5		10.4
Green Ext Time (p_c), s	2.6	4.7		0.5	0.0	10.5		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	26.3
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.



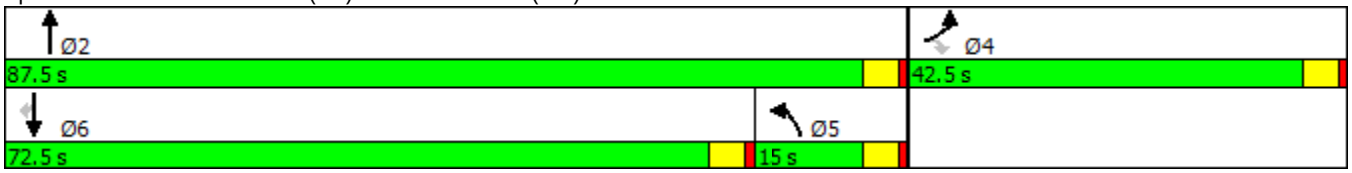
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	206	146	166	1167	2238	249
Future Volume (vph)	206	146	166	1167	2238	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	84	0	756			755
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	*1.00	*1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3725	3725	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3725	3725	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		147				271
Link Speed (mph)	30			30	30	
Link Distance (ft)	1509			1887	2556	
Travel Time (s)	34.3			42.9	58.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	224	159	180	1268	2433	271
Shared Lane Traffic (%)						
Lane Group Flow (vph)	224	159	180	1268	2433	271
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	42.5	42.5	9.5	9.5	30.5	30.5
Total Split (s)	42.5	42.5	15.0	87.5	72.5	72.5
Total Split (%)	32.7%	32.7%	11.5%	67.3%	55.8%	55.8%
Maximum Green (s)	38.0	38.0	10.5	83.0	68.0	68.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	31.0	31.0			19.0	19.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	19.2	19.2	10.5	83.1	68.1	68.1
Actuated g/C Ratio	0.17	0.17	0.09	0.75	0.61	0.61
v/c Ratio	0.74	0.40	1.08	0.46	1.07	0.25
Control Delay	58.3	10.9	141.3	6.5	63.0	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.3	10.9	141.3	6.5	63.0	1.9
LOS	E	B	F	A	E	A
Approach Delay	38.7			23.3	56.9	
Approach LOS	D			C	E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 111.3			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 44.6		Intersection LOS: D	
Intersection Capacity Utilization 93.7%		ICU Level of Service F	
Analysis Period (min) 15			

* User Entered Value

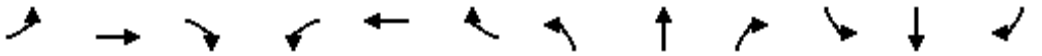
Splits and Phases: 2: SR-76 (NS) & North River Rd (EW)



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	206	146	166	1167	2238	249
Future Volume (veh/h)	206	146	166	1167	2238	249
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	224	159	180	1268	2433	271
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	269	240	172	2851	2336	993
Arrive On Green	0.15	0.15	0.10	0.77	0.63	0.63
Sat Flow, veh/h	1774	1583	1774	3725	3725	1583
Grp Volume(v), veh/h	224	159	180	1268	2433	271
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1863	1863	1583
Q Serve(g_s), s	13.3	10.3	10.5	13.1	68.0	8.4
Cycle Q Clear(g_c), s	13.3	10.3	10.5	13.1	68.0	8.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	269	240	172	2851	2336	993
V/C Ratio(X)	0.83	0.66	1.05	0.44	1.04	0.27
Avail Cap(c_a), veh/h	622	555	172	2851	2336	993
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.7	43.4	49.0	4.5	20.2	9.1
Incr Delay (d2), s/veh	6.6	3.1	82.0	0.5	30.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	9.0	9.0	6.9	44.3	3.8
LnGrp Delay(d),s/veh	51.2	46.5	131.0	5.0	50.8	9.8
LnGrp LOS	D	D	F	A	F	A
Approach Vol, veh/h	383			1448	2704	
Approach Delay, s/veh	49.3			20.7	46.7	
Approach LOS	D			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.5		21.0	15.0	72.5		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		83.0		38.0	10.5	68.0		
Max Q Clear Time (g_c+I1), s		15.1		15.3	12.5	70.0		
Green Ext Time (p_c), s		15.3		1.2	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	38.6
HCM 2010 LOS	D

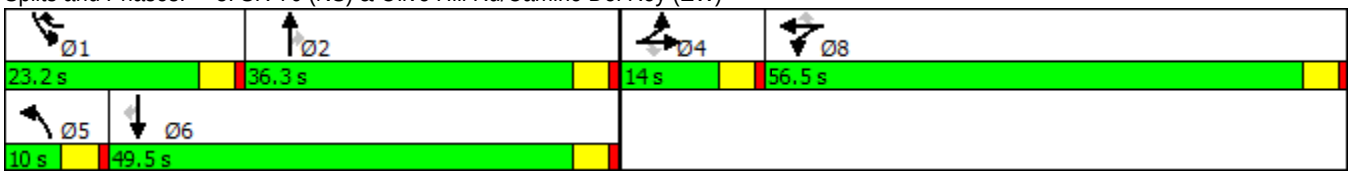


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	196	231	192	84	278	91	1110	171	492	2063	53
Future Volume (vph)	123	196	231	192	84	278	91	1110	171	492	2063	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		219	190		227	834		478	600		476
Storage Lanes	2		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1863	1583	1770	1863	1583	1770	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			243			50			180			88
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		480			1346			1011			2331	
Travel Time (s)		6.5			18.4			23.0			53.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	129	206	243	202	88	293	96	1168	180	518	2172	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	206	243	202	88	293	96	1168	180	518	2172	56
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases			4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	9.5	56.5	56.5	9.5	9.5	9.5	9.5	9.5	39.5	39.5
Total Split (s)	14.0	14.0	14.0	56.5	56.5	23.2	10.0	36.3	36.3	23.2	49.5	49.5
Total Split (%)	10.8%	10.8%	10.8%	43.5%	43.5%	17.8%	7.7%	27.9%	27.9%	17.8%	38.1%	38.1%
Maximum Green (s)	9.5	9.5	9.5	52.0	52.0	18.7	5.5	31.8	31.8	18.7	45.0	45.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)				7.0	7.0						7.0	7.0
Flash Dont Walk (s)				45.0	45.0						28.0	28.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)	9.5	9.5	9.5	15.8	15.8	39.1	5.5	31.9	31.9	18.7	45.1	45.1
Actuated g/C Ratio	0.10	0.10	0.10	0.17	0.17	0.42	0.06	0.34	0.34	0.20	0.48	0.48
v/c Ratio	0.37	1.10	0.64	0.68	0.28	0.43	0.93	0.68	0.27	0.76	0.89	0.07
Control Delay	43.8	135.2	14.3	48.5	36.0	17.9	119.0	29.5	5.0	44.3	28.7	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	135.2	14.3	48.5	36.0	17.9	119.0	29.5	5.0	44.3	28.7	1.6
LOS	D	F	B	D	D	B	F	C	A	D	C	A
Approach Delay		64.0			31.2			32.4			31.1	
Approach LOS		E			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 94			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay: 35.0		Intersection LOS: D	
Intersection Capacity Utilization 80.9%		ICU Level of Service D	
Analysis Period (min) 15			

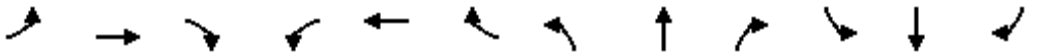
Splits and Phases: 3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	196	231	192	84	278	91	1110	171	492	2063	53
Future Volume (veh/h)	123	196	231	192	84	278	91	1110	171	492	2063	53
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	129	206	243	202	88	293	96	1168	180	518	2172	56
Adj No. of Lanes	2	1	1	1	1	1	1	3	1	2	3	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	341	184	157	332	348	570	102	1796	559	596	2386	743
Arrive On Green	0.10	0.10	0.10	0.19	0.19	0.19	0.06	0.35	0.35	0.17	0.47	0.47
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	1774	5085	1583	3442	5085	1583
Grp Volume(v), veh/h	129	206	243	202	88	293	96	1168	180	518	2172	56
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1774	1695	1583	1721	1695	1583
Q Serve(g_s), s	3.4	9.5	9.5	10.0	3.9	13.9	5.2	18.5	8.0	14.1	38.0	1.9
Cycle Q Clear(g_c), s	3.4	9.5	9.5	10.0	3.9	13.9	5.2	18.5	8.0	14.1	38.0	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	341	184	157	332	348	570	102	1796	559	596	2386	743
V/C Ratio(X)	0.38	1.12	1.55	0.61	0.25	0.51	0.94	0.65	0.32	0.87	0.91	0.08
Avail Cap(c_a), veh/h	341	184	157	962	1010	1133	102	1796	559	671	2386	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	43.2	43.2	35.8	33.3	24.1	45.1	26.1	22.6	38.6	23.6	14.0
Incr Delay (d2), s/veh	0.7	101.0	276.3	1.8	0.4	0.7	71.1	1.8	1.5	10.8	6.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	10.0	16.2	5.0	2.0	6.2	4.5	9.0	3.7	7.6	19.2	0.8
LnGrp Delay(d),s/veh	41.1	144.2	319.5	37.6	33.7	24.8	116.2	27.9	24.2	49.4	30.2	14.2
LnGrp LOS	D	F	F	D	C	C	F	C	C	D	C	B
Approach Vol, veh/h		578			583			1444			2746	
Approach Delay, s/veh		194.9			30.6			33.3			33.5	
Approach LOS		F			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	21.1	38.4		14.0	10.0	49.5		22.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	18.7	31.8		9.5	5.5	45.0		52.0
Max Q Clear Time (g_c+I1), s	16.1	20.5		11.5	7.2	40.0		15.9
Green Ext Time (p_c), s	0.6	11.0		0.0	0.0	4.9		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	50.6
HCM 2010 LOS	D



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	0	1375	0	0	0	613	880	0	6	1301	54
Future Volume (vph)	89	0	1375	0	0	0	613	880	0	6	1301	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		0	439		0	495		0
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25			25			120			25		
Lane Util. Factor	0.97	1.00	*1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850									0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3433	0	3167	0	0	0	3433	3539	0	1770	3539	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	0	3167	0	0	0	3433	3539	0	1770	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73									73
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			263			2331			1378	
Travel Time (s)		19.9			6.0			53.0			31.3	
Peak Hour Factor	0.98	0.92	0.98	0.92	0.92	0.92	0.98	0.98	0.92	0.92	0.98	0.98
Adj. Flow (vph)	91	0	1403	0	0	0	626	898	0	7	1328	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	0	1403	0	0	0	626	898	0	7	1328	55
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1		1				1	2		1	2	1
Detector Template	Left		Right				Left	Thru		Left	Thru	Right
Leading Detector (ft)	20		20				20	100		20	100	20
Trailing Detector (ft)	0		0				0	0		0	0	0
Detector 1 Position(ft)	0		0				0	0		0	0	0
Detector 1 Size(ft)	20		20				20	6		20	6	20
Detector 1 Type	Cl+Ex		Cl+Ex				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot		pm+ov				Prot	NA		Prot	NA	Perm
Protected Phases	4		5				5	2		1	6	
Permitted Phases			4									6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4		5				5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0		5.0				5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		9.5				9.5	22.5		9.5	22.5	22.5
Total Split (s)	22.5		26.0				26.0	58.0		9.5	41.5	41.5
Total Split (%)	25.0%		28.9%				28.9%	64.4%		10.6%	46.1%	46.1%
Maximum Green (s)	18.0		21.5				21.5	53.5		5.0	37.0	37.0
Yellow Time (s)	3.5		3.5				3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0				1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5				4.5	4.5		4.5	4.5	4.5
Lead/Lag			Lead				Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0		3.0	3.0	3.0
Recall Mode	None		None				None	Max		None	Max	Max
Walk Time (s)	7.0							7.0			7.0	7.0
Flash Dont Walk (s)	11.0							11.0			11.0	11.0
Pedestrian Calls (#/hr)	0							0			0	0
Act Effct Green (s)	7.5		31.3				21.6	62.6		5.0	37.2	37.2
Actuated g/C Ratio	0.10		0.40				0.28	0.81		0.06	0.48	0.48
v/c Ratio	0.28		1.06				0.65	0.31		0.06	0.78	0.07
Control Delay	35.5		65.9				29.3	3.5		37.0	21.8	2.5
Queue Delay	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Delay	35.5		65.9				29.3	3.5		37.0	21.8	2.5
LOS	D		E				C	A		D	C	A
Approach Delay		64.1						14.1			21.1	
Approach LOS		E						B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 77.5			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 33.2		Intersection LOS: C	
Intersection Capacity Utilization 91.6%		ICU Level of Service F	
Analysis Period (min) 15			

* User Entered Value

Splits and Phases: 4: SR-76 (NS) & South Mission Rd (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	0	1375	0	0	0	613	880	0	6	1301	54
Future Volume (veh/h)	89	0	1375	0	0	0	613	880	0	6	1301	54
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	91	0	1403				626	898	0	7	1328	55
Adj No. of Lanes	2	0	2				2	2	0	1	2	1
Peak Hour Factor	0.98	0.92	0.98				0.98	0.98	0.92	0.92	0.98	0.98
Percent Heavy Veh, %	2	0	2				2	2	0	2	2	2
Cap, veh/h	714	0	1324				725	2182	0	36	1509	675
Arrive On Green	0.21	0.00	0.21				0.21	0.62	0.00	0.02	0.43	0.43
Sat Flow, veh/h	3442	0	3167				3442	3632	0	1774	3539	1583
Grp Volume(v), veh/h	91	0	1403				626	898	0	7	1328	55
Grp Sat Flow(s),veh/h/ln	1721	0	1583				1721	1770	0	1774	1770	1583
Q Serve(g_s), s	1.9	0.0	18.0				15.2	11.3	0.0	0.3	29.9	1.8
Cycle Q Clear(g_c), s	1.9	0.0	18.0				15.2	11.3	0.0	0.3	29.9	1.8
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	714	0	1324				725	2182	0	36	1509	675
V/C Ratio(X)	0.13	0.00	1.06				0.86	0.41	0.00	0.19	0.88	0.08
Avail Cap(c_a), veh/h	714	0	1324				853	2182	0	102	1509	675
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	0.0	25.3				33.0	8.6	0.0	41.8	22.9	14.8
Incr Delay (d2), s/veh	0.1	0.0	42.2				8.1	0.6	0.0	2.5	7.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	32.9				8.0	5.7	0.0	0.2	16.2	0.8
LnGrp Delay(d),s/veh	28.1	0.0	67.5				41.1	9.1	0.0	44.3	30.5	15.0
LnGrp LOS	C		F				D	A		D	C	B
Approach Vol, veh/h		1494						1524			1390	
Approach Delay, s/veh		65.1						22.3			30.0	
Approach LOS		E						C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	6.3	58.0		22.5	22.8	41.5		
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s	5.0	53.5		18.0	21.5	37.0		
Max Q Clear Time (g_c+I1), s	2.3	13.3		20.0	17.2	31.9		
Green Ext Time (p_c), s	2.1	7.8		0.0	1.1	3.7		

Intersection Summary	
HCM 2010 Ctrl Delay	39.2
HCM 2010 LOS	D

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	619	240	0	427	128	0
Future Volume (vph)	619	240	0	427	128	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962					
Flt Protected					0.950	
Satd. Flow (prot)	1792	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1792	0	0	1863	1770	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	1346			174	267	
Travel Time (s)	18.4			2.4	6.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	659	255	0	454	136	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	914	0	0	454	136	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.9%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	5.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	619	240	0	427	128	0
Future Vol, veh/h	619	240	0	427	128	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	659	255	0	454	136	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	914	0	1240	786
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	454	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	746	-	193	392
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	640	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	746	-	193	392
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	640	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	58.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	193	-	-	746	-
HCM Lane V/C Ratio	0.706	-	-	-	-
HCM Control Delay (s)	58.9	-	-	0	-
HCM Lane LOS	F	-	-	A	-
HCM 95th %tile Q(veh)	4.4	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	619	0	148	427	0	48
Future Volume (vph)	619	0	148	427	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.987		
Satd. Flow (prot)	1863	0	0	1839	1611	0
Flt Permitted				0.987		
Satd. Flow (perm)	1863	0	0	1839	1611	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	174			723	234	
Travel Time (s)	2.4			9.9	5.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	659	0	157	454	0	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	659	0	0	611	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 76.6%		ICU Level of Service D	
Analysis Period (min) 15			

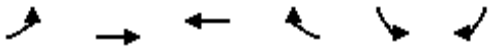
Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	619	0	148	427	0	48
Future Vol, veh/h	619	0	148	427	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	659	0	157	454	0	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	659	0	1428	659
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	769	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	929	-	149	464
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	457	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	929	-	115	464
Mov Cap-2 Maneuver	-	-	-	-	115	-
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	354	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	464	-	-	929	-
HCM Lane V/C Ratio	0.11	-	-	0.169	-
HCM Control Delay (s)	13.7	-	-	9.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.6	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	140	527	418	4	6	157
Future Volume (vph)	140	527	418	4	6	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	68
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected		0.990			0.950	
Satd. Flow (prot)	0	1844	1863	1583	1770	1583
Flt Permitted		0.990			0.950	
Satd. Flow (perm)	0	1844	1863	1583	1770	1583
Link Speed (mph)		50	50		45	
Link Distance (ft)		951	613		780	
Travel Time (s)		13.0	8.4		11.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	157	592	470	4	7	176
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	749	470	4	7	176
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.8%		ICU Level of Service C	
Analysis Period (min) 15			

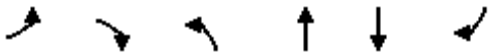
Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	140	527	418	4	6	157
Future Vol, veh/h	140	527	418	4	6	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	0	68
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	157	592	470	4	7	176

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	470	0	-	0	1377	470
Stage 1	-	-	-	-	470	-
Stage 2	-	-	-	-	907	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1092	-	-	-	160	594
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	394	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1092	-	-	-	126	594
Mov Cap-2 Maneuver	-	-	-	-	126	-
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	310	-

Approach	EB	WB	SB
HCM Control Delay, s	1.9	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1092	-	-	-	126	594
HCM Lane V/C Ratio	0.144	-	-	-	0.054	0.297
HCM Control Delay (s)	8.9	0	-	-	35.2	13.6
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.2	1.2

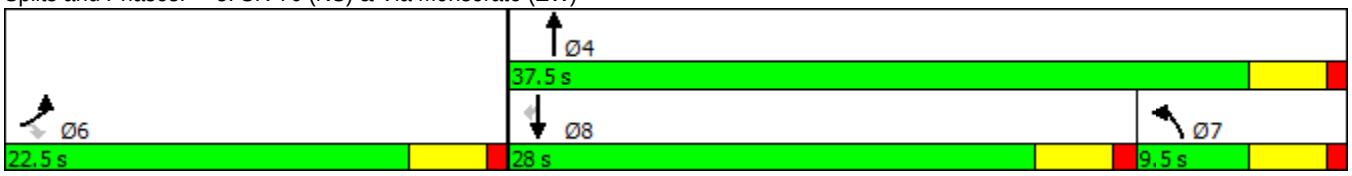


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	77	24	11	993	1334	36
Future Volume (vph)	77	24	11	993	1334	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	550			500
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		25				38
Link Speed (mph)	30			30	30	
Link Distance (ft)	1025			6793	3274	
Travel Time (s)	23.3			154.4	74.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	80	25	11	1034	1390	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	25	11	1034	1390	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	6		7	4	8	
Permitted Phases		6				8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	6	6	7	4	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	9.5	37.5	28.0	28.0
Total Split (%)	37.5%	37.5%	15.8%	62.5%	46.7%	46.7%
Maximum Green (s)	18.0	18.0	5.0	33.0	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	18.1	18.1	5.0	25.8	24.1	24.1
Actuated g/C Ratio	0.34	0.34	0.09	0.49	0.46	0.46
v/c Ratio	0.13	0.04	0.07	0.60	0.86	0.05
Control Delay	14.0	6.9	24.6	11.4	21.8	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.0	6.9	24.6	11.4	21.8	4.3
LOS	B	A	C	B	C	A
Approach Delay	12.3			11.5	21.3	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 52.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 17.0		Intersection LOS: B	
Intersection Capacity Utilization 48.6%		ICU Level of Service A	
Analysis Period (min) 15			

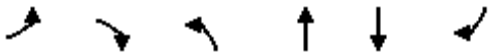
Splits and Phases: 8: SR-76 (NS) & Via Monserate (EW)



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	77	24	11	993	1334	36
Future Volume (veh/h)	77	24	11	993	1334	36
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	80	25	11	1034	1390	38
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	574	512	25	1823	1487	665
Arrive On Green	0.32	0.32	0.01	0.52	0.42	0.42
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	80	25	11	1034	1390	38
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	1.8	0.6	0.3	11.1	20.9	0.8
Cycle Q Clear(g_c), s	1.8	0.6	0.3	11.1	20.9	0.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	574	512	25	1823	1487	665
V/C Ratio(X)	0.14	0.05	0.44	0.57	0.93	0.06
Avail Cap(c_a), veh/h	574	512	159	2098	1494	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	13.0	27.2	9.2	15.4	9.6
Incr Delay (d2), s/veh	0.5	0.2	11.8	0.3	11.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.7	0.2	5.4	12.3	0.4
LnGrp Delay(d),s/veh	13.9	13.1	39.0	9.5	26.6	9.6
LnGrp LOS	B	B	D	A	C	A
Approach Vol, veh/h	105			1045	1428	
Approach Delay, s/veh	13.7			9.8	26.2	
Approach LOS	B			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				33.2		22.5	5.3	27.9
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0		18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				13.1		3.8	2.3	22.9
Green Ext Time (p_c), s				7.6		0.2	1.7	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	22	40	16	116	226	13
Future Volume (vph)	22	40	16	116	226	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.993	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1850	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1850	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	531			4215	454	
Travel Time (s)	12.1			95.8	10.3	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	25	45	18	132	257	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	45	18	132	272	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane					Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.3%		ICU Level of Service A	
Analysis Period (min) 15			

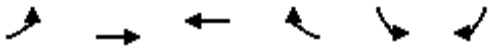
Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	40	16	116	226	13
Future Vol, veh/h	22	40	16	116	226	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	45	18	132	257	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	432	264	272	0	-	0
Stage 1	264	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	581	775	1291	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	573	775	1291	-	-	-
Mov Cap-2 Maneuver	693	-	-	-	-	-
Stage 1	780	-	-	-	-	-
Stage 2	850	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1291	-	693	775	-	-
HCM Lane V/C Ratio	0.014	-	0.036	0.059	-	-
HCM Control Delay (s)	7.8	-	10.4	9.9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.2	-	-

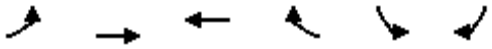


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	257	793	1120	83	87	245
Future Volume (vph)	257	793	1120	83	87	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	490			490	0	228
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				88		261
Link Speed (mph)		30	30		50	
Link Distance (ft)		3274	12216		4215	
Travel Time (s)		74.4	277.6		57.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	273	844	1191	88	93	261
Shared Lane Traffic (%)						
Lane Group Flow (vph)	273	844	1191	88	93	261
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	19.0	52.5	33.5	33.5	22.5	22.5
Total Split (%)	25.3%	70.0%	44.7%	44.7%	30.0%	30.0%
Maximum Green (s)	14.5	48.0	29.0	29.0	18.0	18.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag		Lead	Lead		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	14.5	48.0	29.0	29.0	8.9	8.9
Actuated g/C Ratio	0.22	0.73	0.44	0.44	0.14	0.14
v/c Ratio	0.70	0.33	0.76	0.12	0.39	0.60
Control Delay	36.2	3.8	20.2	3.7	30.8	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	3.8	20.2	3.7	30.8	10.1
LOS	D	A	C	A	C	B
Approach Delay		11.8	19.0		15.5	
Approach LOS		B	B		B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 65.9			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 61.3%		ICU Level of Service B	
Analysis Period (min) 15			

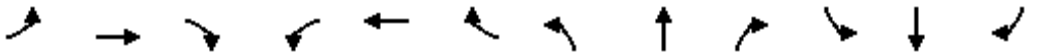
Splits and Phases: 10: SR-76 (EW) & Gird Road (NS)



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	257	793	1120	83	87	245
Future Volume (veh/h)	257	793	1120	83	87	245
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	273	844	1191	88	93	261
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	364	2402	1451	649	344	307
Arrive On Green	0.20	0.68	0.41	0.41	0.19	0.19
Sat Flow, veh/h	1774	3632	3632	1583	1774	1583
Grp Volume(v), veh/h	273	844	1191	88	93	261
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1583	1774	1583
Q Serve(g_s), s	10.2	7.1	21.2	2.5	3.2	11.3
Cycle Q Clear(g_c), s	10.2	7.1	21.2	2.5	3.2	11.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	364	2402	1451	649	344	307
V/C Ratio(X)	0.75	0.35	0.82	0.14	0.27	0.85
Avail Cap(c_a), veh/h	364	2402	1451	649	451	403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	4.8	18.6	13.0	24.2	27.5
Incr Delay (d2), s/veh	8.4	0.4	5.3	0.4	0.4	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	3.5	11.3	1.2	1.6	10.3
LnGrp Delay(d),s/veh	34.9	5.2	23.9	13.5	24.7	39.9
LnGrp LOS	C	A	C	B	C	D
Approach Vol, veh/h		1117	1279		354	
Approach Delay, s/veh		12.5	23.2		35.9	
Approach LOS		B	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				52.5		18.2	19.0	33.5
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				48.0		18.0	14.5	29.0
Max Q Clear Time (g_c+I1), s				9.1		13.3	12.2	23.2
Green Ext Time (p_c), s				8.3		0.5	1.4	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	707	111	85	986	89	100	84	55	167	196	101
Future Volume (vph)	64	707	111	85	986	89	100	84	55	167	196	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	503		0	275		0	0		194	0		0
Storage Lanes	1		1	1		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.988				0.850		0.949	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	5024	0	1770	1863	1583	3433	1768	0
Flt Permitted	0.950			0.950			0.404			0.699		
Satd. Flow (perm)	1770	5085	1583	1770	5024	0	753	1863	1583	2526	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118		16				127		45	
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		12216			518			1079			789	
Travel Time (s)		151.4			6.4			24.5			17.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	68	752	118	90	1049	95	106	89	59	178	209	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	752	118	90	1144	0	106	89	59	178	316	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		53.5	53.5	53.5	42.5	42.5	
Total Split (s)	9.8	24.6	24.6	11.9	26.7		53.5	53.5	53.5	53.5	53.5	
Total Split (%)	10.9%	27.3%	27.3%	13.2%	29.7%		59.4%	59.4%	59.4%	59.4%	59.4%	
Maximum Green (s)	5.3	20.1	20.1	7.4	22.2		49.0	49.0	49.0	49.0	49.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lag	Lag	Lag	Lead	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	
Walk Time (s)		7.0	7.0				7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0				42.0	42.0	42.0	31.0	31.0	
Pedestrian Calls (#/hr)		0	0				0	0	0	0	0	
Act Effct Green (s)	5.4	21.2	21.2	7.2	22.8		14.1	14.1	14.1	14.1	14.1	
Actuated g/C Ratio	0.10	0.40	0.40	0.13	0.43		0.26	0.26	0.26	0.26	0.26	
v/c Ratio	0.38	0.37	0.17	0.38	0.53		0.53	0.18	0.12	0.27	0.63	
Control Delay	32.0	14.1	4.3	28.8	14.0		28.0	16.3	0.8	16.8	21.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	32.0	14.1	4.3	28.8	14.0		28.0	16.3	0.8	16.8	21.2	
LOS	C	B	A	C	B		C	B	A	B	C	
Approach Delay		14.1			15.1			17.6			19.6	
Approach LOS		B			B			B			B	

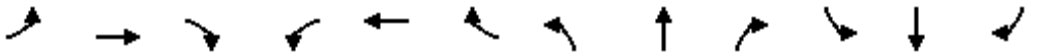
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 53.5			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 15.8		Intersection LOS: B	
Intersection Capacity Utilization 62.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 11: Old Highway 395 (NS) & SR-76 (EW)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	707	111	85	986	89	100	84	55	167	196	101
Future Volume (veh/h)	64	707	111	85	986	89	100	84	55	167	196	101
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	68	752	118	90	1049	95	106	89	59	178	209	107
Adj No. of Lanes	1	3	1	1	3	0	1	1	1	2	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	1840	573	116	1802	163	332	637	541	986	397	203
Arrive On Green	0.05	0.36	0.36	0.07	0.38	0.38	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	5085	1583	1774	4748	429	1059	1863	1583	2395	1163	595
Grp Volume(v), veh/h	68	752	118	90	749	395	106	89	59	178	0	316
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1787	1059	1863	1583	1198	0	1758
Q Serve(g_s), s	2.2	6.5	3.0	2.9	10.3	10.3	5.2	1.9	1.5	3.2	0.0	8.4
Cycle Q Clear(g_c), s	2.2	6.5	3.0	2.9	10.3	10.3	13.7	1.9	1.5	5.2	0.0	8.4
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		0.34
Lane Grp Cap(c), veh/h	85	1840	573	116	1286	678	332	637	541	986	0	601
V/C Ratio(X)	0.80	0.41	0.21	0.77	0.58	0.58	0.32	0.14	0.11	0.18	0.00	0.53
Avail Cap(c_a), veh/h	161	1840	573	224	1286	678	857	1560	1326	2173	0	1472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.6	14.0	12.9	26.9	14.5	14.5	20.9	13.3	13.2	15.1	0.0	15.4
Incr Delay (d2), s/veh	15.5	0.7	0.8	10.3	1.9	3.6	0.5	0.1	0.1	0.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.1	1.4	1.8	5.1	5.7	1.6	1.0	0.7	1.1	0.0	4.2
LnGrp Delay(d),s/veh	43.1	14.7	13.7	37.2	16.4	18.1	21.5	13.4	13.3	15.2	0.0	16.2
LnGrp LOS	D	B	B	D	B	B	C	B	B	B		B
Approach Vol, veh/h		938			1234			254			494	
Approach Delay, s/veh		16.6			18.5			16.7			15.8	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.5	8.3	25.7		24.5	7.3	26.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		49.0	7.4	20.1		49.0	5.3	22.2
Max Q Clear Time (g_c+I1), s		15.7	4.9	8.5		10.4	4.2	12.3
Green Ext Time (p_c), s		4.3	0.0	3.9		4.4	0.0	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B



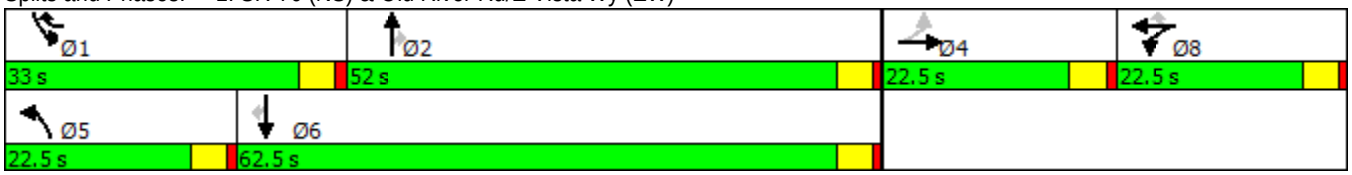
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	37	82	231	31	668	62	1848	507	722	1164	19
Future Volume (vph)	19	37	82	231	31	668	62	1848	507	722	1164	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	8
Storage Length (ft)	0		0	273		0	833		540	382		100
Storage Lanes	0		0	1		1	1		1	2		1
Taper Length (ft)	25			25			25			120		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	*1.00	1.00	*1.00	*1.00	1.00
Frt		0.911				0.850			0.850			0.850
Flt Protected		0.993		0.950	0.963		0.950			0.950		
Satd. Flow (prot)	0	3202	0	1681	1704	1583	1770	5588	1583	3539	5588	1372
Flt Permitted		0.601		0.950	0.963		0.950			0.950		
Satd. Flow (perm)	0	1938	0	1681	1704	1583	1770	5588	1583	3539	5588	1372
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		89				248			551			88
Link Speed (mph)		50			30			30			30	
Link Distance (ft)		948			495			1112			1560	
Travel Time (s)		12.9			11.3			25.3			35.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	40	89	251	34	726	67	2009	551	785	1265	21
Shared Lane Traffic (%)				44%								
Lane Group Flow (vph)	0	150	0	141	144	726	67	2009	551	785	1265	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.20
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	8	1	5	2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4					8			2			6
Detector Phase	4	4		8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	9.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.5	22.5		22.5	22.5	33.0	22.5	52.0	52.0	33.0	62.5	62.5
Total Split (%)	17.3%	17.3%		17.3%	17.3%	25.4%	17.3%	40.0%	40.0%	25.4%	48.1%	48.1%
Maximum Green (s)	18.0	18.0		18.0	18.0	28.5	18.0	47.5	47.5	28.5	58.0	58.0
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		9.8		14.5	14.5	47.6	9.9	47.6	47.6	28.6	68.7	68.7
Actuated g/C Ratio		0.08		0.12	0.12	0.40	0.08	0.40	0.40	0.24	0.58	0.58
v/c Ratio		0.62		0.69	0.69	0.93	0.46	0.90	0.57	0.92	0.39	0.03
Control Delay		34.7		67.9	68.1	41.5	62.9	40.2	4.8	61.6	15.9	0.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		34.7		67.9	68.1	41.5	62.9	40.2	4.8	61.6	15.9	0.1
LOS		C		E	E	D	E	D	A	E	B	A
Approach Delay		34.7			48.9			33.4			33.1	
Approach LOS		C			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 118.6			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 36.0		Intersection LOS: D	
Intersection Capacity Utilization 92.5%		ICU Level of Service F	
Analysis Period (min) 15			

* User Entered Value

Splits and Phases: 1: SR-76 (NS) & Old River Rd/E Vista Wy (EW)



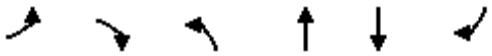
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	37	82	231	31	668	62	1848	507	722	1164	19
Future Volume (veh/h)	19	37	82	231	31	668	62	1848	507	722	1164	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1788
Adj Flow Rate, veh/h	21	40	89	275	0	726	67	2009	551	785	1265	21
Adj No. of Lanes	0	2	0	2	0	1	1	3	1	2	3	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	47	90	118	528	0	607	96	2196	622	833	3203	871
Arrive On Green	0.07	0.07	0.07	0.15	0.00	0.15	0.05	0.39	0.39	0.23	0.57	0.57
Sat Flow, veh/h	630	1201	1583	3548	0	1583	1774	5588	1583	3548	5588	1520
Grp Volume(v), veh/h	61	0	89	275	0	726	67	2009	551	785	1265	21
Grp Sat Flow(s),veh/h/ln	1831	0	1583	1774	0	1583	1774	1863	1583	1774	1863	1520
Q Serve(g_s), s	3.9	0.0	6.7	8.6	0.0	18.0	4.5	41.2	39.2	26.3	15.1	0.7
Cycle Q Clear(g_c), s	3.9	0.0	6.7	8.6	0.0	18.0	4.5	41.2	39.2	26.3	15.1	0.7
Prop In Lane	0.34		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	137	0	118	528	0	607	96	2196	622	833	3203	871
V/C Ratio(X)	0.45	0.00	0.75	0.52	0.00	1.20	0.69	0.91	0.89	0.94	0.39	0.02
Avail Cap(c_a), veh/h	273	0	236	528	0	607	264	2196	622	836	3203	871
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	0.0	54.8	47.5	0.0	37.3	56.2	34.8	34.2	45.5	14.2	11.2
Incr Delay (d2), s/veh	2.3	0.0	9.3	0.9	0.0	103.3	8.6	7.4	16.9	18.6	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	3.2	4.3	0.0	37.6	2.4	22.7	20.1	15.0	7.8	0.3
LnGrp Delay(d),s/veh	55.8	0.0	64.1	48.4	0.0	140.6	64.8	42.2	51.0	64.1	14.6	11.2
LnGrp LOS	E		E	D		F	E	D	D	E	B	B
Approach Vol, veh/h		150			1001			2627			2071	
Approach Delay, s/veh		60.7			115.3			44.6			33.3	
Approach LOS		E			F			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	32.9	52.0		13.5	11.1	73.8		22.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	28.5	47.5		18.0	18.0	58.0		18.0
Max Q Clear Time (g_c+I1), s	28.3	43.2		8.7	6.5	17.1		20.0
Green Ext Time (p_c), s	0.1	4.2		0.4	0.1	37.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	53.1
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	217	215	118	2387	1511	195
Future Volume (vph)	217	215	118	2387	1511	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	84	0	756			755
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		184				199
Link Speed (mph)	30			30	30	
Link Distance (ft)	1509			1887	2556	
Travel Time (s)	34.3			42.9	58.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	221	219	120	2436	1542	199
Shared Lane Traffic (%)						
Lane Group Flow (vph)	221	219	120	2436	1542	199
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	42.5	42.5	9.5	22.5	30.5	30.5
Total Split (s)	42.5	42.5	16.7	87.5	70.8	70.8
Total Split (%)	32.7%	32.7%	12.8%	67.3%	54.5%	54.5%
Maximum Green (s)	38.0	38.0	12.2	83.0	66.3	66.3
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	7.0	7.0			7.0	7.0
Flash Dont Walk (s)	31.0	31.0			19.0	19.0
Pedestrian Calls (#/hr)	0	0			0	0
Act Effct Green (s)	19.0	19.0	11.3	83.1	67.4	67.4
Actuated g/C Ratio	0.17	0.17	0.10	0.75	0.61	0.61
v/c Ratio	0.73	0.52	0.67	0.92	0.72	0.19
Control Delay	58.2	13.7	67.8	19.7	18.7	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.2	13.7	67.8	19.7	18.7	2.1
LOS	E	B	E	B	B	A
Approach Delay	36.1			22.0	16.8	
Approach LOS	D			C	B	

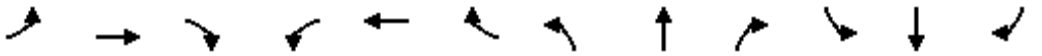
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 111.1			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 85.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 2: SR-76 (NS) & North River Rd (EW)

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	217	215	118	2387	1511	195
Future Volume (veh/h)	217	215	118	2387	1511	195
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	221	219	120	2436	1542	199
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	292	261	147	2667	2228	997
Arrive On Green	0.16	0.16	0.08	0.75	0.63	0.63
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	221	219	120	2436	1542	199
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	13.1	14.8	7.3	59.9	31.5	5.9
Cycle Q Clear(g_c), s	13.1	14.8	7.3	59.9	31.5	5.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	292	261	147	2667	2228	997
V/C Ratio(X)	0.76	0.84	0.81	0.91	0.69	0.20
Avail Cap(c_a), veh/h	612	546	197	2667	2228	997
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.9	44.6	49.7	10.7	13.4	8.6
Incr Delay (d2), s/veh	4.0	7.1	17.2	6.1	1.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	12.8	4.3	31.0	15.8	2.7
LnGrp Delay(d),s/veh	47.9	51.7	66.9	16.9	15.2	9.1
LnGrp LOS	D	D	E	B	B	A
Approach Vol, veh/h	440			2556	1741	
Approach Delay, s/veh	49.8			19.2	14.5	
Approach LOS	D			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		87.5		22.6	13.7	73.8		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		83.0		38.0	12.2	66.3		
Max Q Clear Time (g_c+I1), s		61.9		16.8	9.3	33.5		
Green Ext Time (p_c), s		20.8		1.4	0.1	32.1		

Intersection Summary	
HCM 2010 Ctrl Delay	20.3
HCM 2010 LOS	C



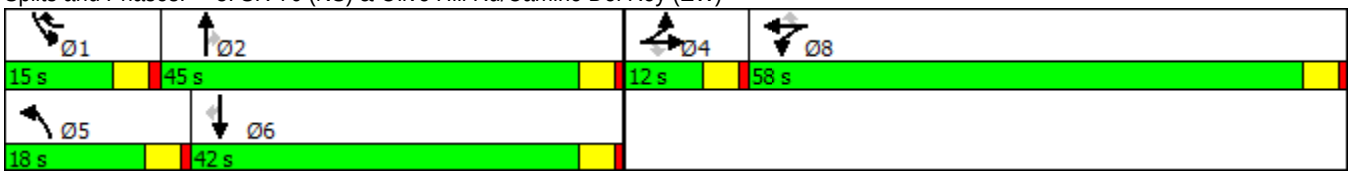
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	79	142	121	124	408	212	2110	194	279	1393	85
Future Volume (vph)	152	79	142	121	124	408	212	2110	194	279	1393	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	335		219	190		227	834		478	600		476
Storage Lanes	2		1	1		1	1		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	*1.00	1.00	0.97	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	1770	1863	1583	1770	5588	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1863	1583	1770	1863	1583	1770	5588	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148			50			202			89
Link Speed (mph)		50			50			30			30	
Link Distance (ft)		480			1346			1011			2331	
Travel Time (s)		6.5			18.4			23.0			53.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	158	82	148	126	129	425	221	2198	202	291	1451	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	82	148	126	129	425	221	2198	202	291	1451	89
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases			4			8			2			6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	9.5	9.5	56.5	56.5	9.5	9.5	9.5	9.5	9.5	39.5	39.5
Total Split (s)	12.0	12.0	12.0	58.0	58.0	15.0	18.0	45.0	45.0	15.0	42.0	42.0
Total Split (%)	9.2%	9.2%	9.2%	44.6%	44.6%	11.5%	13.8%	34.6%	34.6%	11.5%	32.3%	32.3%
Maximum Green (s)	7.5	7.5	7.5	53.5	53.5	10.5	13.5	40.5	40.5	10.5	37.5	37.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)				7.0	7.0						7.0	7.0
Flash Dont Walk (s)				45.0	45.0						28.0	28.0
Pedestrian Calls (#/hr)				0	0						0	0
Act Effct Green (s)	7.5	7.5	7.5	11.5	11.5	26.5	13.5	40.6	40.6	10.5	37.6	37.6
Actuated g/C Ratio	0.09	0.09	0.09	0.13	0.13	0.30	0.15	0.46	0.46	0.12	0.43	0.43
v/c Ratio	0.54	0.52	0.55	0.55	0.53	0.83	0.82	0.85	0.24	0.71	0.67	0.12
Control Delay	46.7	51.9	15.5	45.0	43.9	40.6	61.4	25.8	3.1	48.6	22.5	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	51.9	15.5	45.0	43.9	40.6	61.4	25.8	3.1	48.6	22.5	4.4
LOS	D	D	B	D	D	D	E	C	A	D	C	A
Approach Delay		35.9			42.0			27.1			25.8	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 88.1			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 29.1		Intersection LOS: C	
Intersection Capacity Utilization 81.6%		ICU Level of Service D	
Analysis Period (min) 15			

* User Entered Value

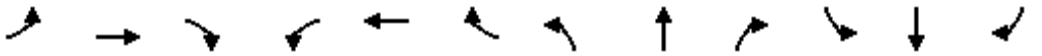
Splits and Phases: 3: SR-76 (NS) & Olive Hill Rd/Camino Del Rey (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	79	142	121	124	408	212	2110	194	279	1393	85
Future Volume (veh/h)	152	79	142	121	124	408	212	2110	194	279	1393	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	158	82	148	126	129	425	221	2198	202	291	1451	89
Adj No. of Lanes	2	1	1	1	1	1	1	3	1	2	3	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	133	113	484	508	590	228	2151	610	344	1813	564
Arrive On Green	0.07	0.07	0.07	0.27	0.27	0.27	0.13	0.39	0.39	0.10	0.36	0.36
Sat Flow, veh/h	3442	1863	1583	1774	1863	1583	1774	5588	1583	3442	5085	1583
Grp Volume(v), veh/h	158	82	148	126	129	425	221	2198	202	291	1451	89
Grp Sat Flow(s),veh/h/ln	1721	1863	1583	1774	1863	1583	1774	1863	1583	1721	1695	1583
Q Serve(g_s), s	4.7	4.5	7.5	5.8	5.7	24.2	13.0	40.5	9.5	8.7	27.0	4.0
Cycle Q Clear(g_c), s	4.7	4.5	7.5	5.8	5.7	24.2	13.0	40.5	9.5	8.7	27.0	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	245	133	113	484	508	590	228	2151	610	344	1813	564
V/C Ratio(X)	0.64	0.62	1.31	0.26	0.25	0.72	0.97	1.02	0.33	0.85	0.80	0.16
Avail Cap(c_a), veh/h	245	133	113	902	947	963	228	2151	610	344	1813	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	47.5	48.8	29.9	29.9	28.3	45.7	32.3	22.8	46.6	30.5	23.1
Incr Delay (d2), s/veh	5.7	8.3	189.6	0.3	0.3	1.7	51.2	25.1	1.5	17.6	3.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.6	9.2	2.9	3.0	10.8	9.6	25.7	4.4	5.0	13.3	1.8
LnGrp Delay(d),s/veh	53.2	55.8	238.4	30.2	30.1	30.0	96.8	57.4	24.3	64.1	34.3	23.7
LnGrp LOS	D	E	F	C	C	C	F	F	C	E	C	C
Approach Vol, veh/h		388			680			2621			1831	
Approach Delay, s/veh		124.4			30.1			58.2			38.5	
Approach LOS		F			C			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.0	45.0		12.0	18.0	42.0		33.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	10.5	40.5		7.5	13.5	37.5		53.5
Max Q Clear Time (g_c+I1), s	10.7	42.5		9.5	15.0	29.0		26.2
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	8.3		2.5

Intersection Summary	
HCM 2010 Ctrl Delay	52.9
HCM 2010 LOS	D



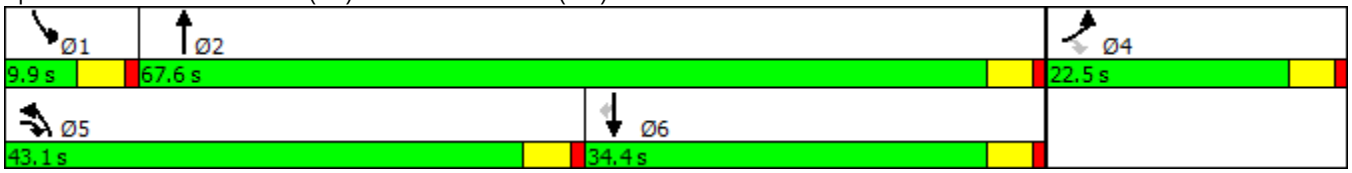
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	0	718	0	0	0	1346	1313	0	19	1032	106
Future Volume (vph)	119	0	718	0	0	0	1346	1313	0	19	1032	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		200	0		0	439		0	495		0
Storage Lanes	1		1	0		0	2		0	1		1
Taper Length (ft)	25			25			120			25		
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00	1.00	*1.00	0.95	1.00	1.00	*1.00	1.00
Frt			0.850									0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	3433	0	2787	0	0	0	3539	3539	0	1770	3725	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	0	2787	0	0	0	3539	3539	0	1770	3725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			16									115
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			263			2331			1378	
Travel Time (s)		19.9			6.0			53.0			31.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	124	0	748	0	0	0	1402	1368	0	20	1075	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	0	748	0	0	0	1402	1368	0	20	1075	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1		1				1	2		1	2	1
Detector Template	Left		Right				Left	Thru		Left	Thru	Right
Leading Detector (ft)	20		20				20	100		20	100	20
Trailing Detector (ft)	0		0				0	0		0	0	0
Detector 1 Position(ft)	0		0				0	0		0	0	0
Detector 1 Size(ft)	20		20				20	6		20	6	20
Detector 1 Type	Cl+Ex		Cl+Ex				Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Prot		pm+ov				Prot	NA		Prot	NA	Perm
Protected Phases	4		5				5	2		1	6	
Permitted Phases			4									6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4		5				5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0		5.0				5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5		9.5				9.5	22.5		9.5	22.5	22.5
Total Split (s)	22.5		43.1				43.1	67.6		9.9	34.4	34.4
Total Split (%)	22.5%		43.1%				43.1%	67.6%		9.9%	34.4%	34.4%
Maximum Green (s)	18.0		38.6				38.6	63.1		5.4	29.9	29.9
Yellow Time (s)	3.5		3.5				3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0		1.0				1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5		4.5				4.5	4.5		4.5	4.5	4.5
Lead/Lag			Lead				Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0		3.0	3.0	3.0
Recall Mode	None		None				None	Max		None	Max	Max
Walk Time (s)	7.0							7.0			7.0	7.0
Flash Dont Walk (s)	11.0							11.0			11.0	11.0
Pedestrian Calls (#/hr)	0							0			0	0
Act Effct Green (s)	8.6		51.8				38.6	69.2		5.4	29.9	29.9
Actuated g/C Ratio	0.09		0.57				0.43	0.76		0.06	0.33	0.33
v/c Ratio	0.38		0.47				0.93	0.51		0.19	0.88	0.18
Control Delay	41.8		12.3				37.6	5.9		45.7	38.5	5.1
Queue Delay	0.0		0.0				0.0	0.0		0.0	0.0	0.0
Total Delay	41.8		12.3				37.6	5.9		45.7	38.5	5.1
LOS	D		B				D	A		D	D	A
Approach Delay		16.5						21.9			35.5	
Approach LOS		B						C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 90.7			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 24.3		Intersection LOS: C	
Intersection Capacity Utilization 81.2%		ICU Level of Service D	
Analysis Period (min) 15			

* User Entered Value

Splits and Phases: 4: SR-76 (NS) & South Mission Rd (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	0	718	0	0	0	1346	1313	0	19	1032	106
Future Volume (veh/h)	119	0	718	0	0	0	1346	1313	0	19	1032	106
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0	1863				1863	1863	0	1863	1863	1863
Adj Flow Rate, veh/h	124	0	748				1402	1368	0	20	1075	110
Adj No. of Lanes	2	0	2				2	2	0	1	2	1
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	2				2	2	0	2	2	2
Cap, veh/h	618	0	1577				1370	2350	0	38	1114	474
Arrive On Green	0.18	0.00	0.18				0.39	0.66	0.00	0.02	0.30	0.30
Sat Flow, veh/h	3442	0	2787				3548	3632	0	1774	3725	1583
Grp Volume(v), veh/h	124	0	748				1402	1368	0	20	1075	110
Grp Sat Flow(s),veh/h/ln	1721	0	1393				1774	1770	0	1774	1863	1583
Q Serve(g_s), s	3.1	0.0	15.9				38.6	21.2	0.0	1.1	28.4	5.2
Cycle Q Clear(g_c), s	3.1	0.0	15.9				38.6	21.2	0.0	1.1	28.4	5.2
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	618	0	1577				1370	2350	0	38	1114	474
V/C Ratio(X)	0.20	0.00	0.47				1.02	0.58	0.00	0.53	0.96	0.23
Avail Cap(c_a), veh/h	620	0	1578				1370	2350	0	96	1114	474
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	0.0	12.9				30.7	9.2	0.0	48.4	34.5	26.4
Incr Delay (d2), s/veh	0.2	0.0	0.2				30.4	1.1	0.0	11.0	19.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	14.8				24.6	10.6	0.0	0.7	17.7	2.4
LnGrp Delay(d),s/veh	35.0	0.0	13.1				61.1	10.3	0.0	59.4	54.2	27.5
LnGrp LOS	D		B				F	B		E	D	C
Approach Vol, veh/h		872						2770			1205	
Approach Delay, s/veh		16.2						36.0			51.9	
Approach LOS		B						D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		
Phs Duration (G+Y+Rc), s	6.6	70.9		22.5	43.1	34.4		
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s	5.4	63.1		18.0	38.6	29.9		
Max Q Clear Time (g_c+I1), s	3.1	23.2		17.9	40.6	30.4		
Green Ext Time (p_c), s	0.0	28.9		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	36.4
HCM 2010 LOS	D

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	473	78	0	535	120	0
Future Volume (vph)	473	78	0	535	120	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981					
Flt Protected					0.950	
Satd. Flow (prot)	1827	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1827	0	0	1863	1770	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	1346			174	267	
Travel Time (s)	18.4			2.4	6.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	498	82	0	563	126	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	580	0	0	563	126	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	473	78	0	535	120	0
Future Vol, veh/h	473	78	0	535	120	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	498	82	0	563	126	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	580	0	1102	539
Stage 1	-	-	-	-	539	-
Stage 2	-	-	-	-	563	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	994	-	234	542
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	570	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	994	-	234	542
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	570	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	37.1
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	234	-	-	994	-
HCM Lane V/C Ratio	0.54	-	-	-	-
HCM Control Delay (s)	37.1	-	-	0	-
HCM Lane LOS	E	-	-	A	-
HCM 95th %tile Q(veh)	2.9	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	473	0	51	535	0	57
Future Volume (vph)	473	0	51	535	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.996		
Satd. Flow (prot)	1863	0	0	1855	1611	0
Flt Permitted				0.996		
Satd. Flow (perm)	1863	0	0	1855	1611	0
Link Speed (mph)	50			50	30	
Link Distance (ft)	174			723	234	
Travel Time (s)	2.4			9.9	5.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	498	0	54	563	0	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	498	0	0	617	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.4%		ICU Level of Service C	
Analysis Period (min) 15			

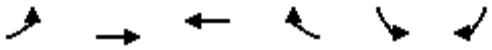
Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	473	0	51	535	0	57
Future Vol, veh/h	473	0	51	535	0	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	498	0	54	563	0	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	498	0	1169	498
Stage 1	-	-	-	-	498	-
Stage 2	-	-	-	-	671	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1066	-	213	572
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	508	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1066	-	197	572
Mov Cap-2 Maneuver	-	-	-	-	197	-
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	470	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	572	-	-	1066	-
HCM Lane V/C Ratio	0.105	-	-	0.05	-
HCM Control Delay (s)	12	-	-	8.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	123	408	480	8	10	107
Future Volume (vph)	123	408	480	8	10	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0			100	0	68
Storage Lanes	0			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected		0.989			0.950	
Satd. Flow (prot)	0	1842	1863	1583	1770	1583
Flt Permitted		0.989			0.950	
Satd. Flow (perm)	0	1842	1863	1583	1770	1583
Link Speed (mph)		50	50		45	
Link Distance (ft)		951	613		780	
Travel Time (s)		13.0	8.4		11.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	132	439	516	9	11	115
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	571	516	9	11	115
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

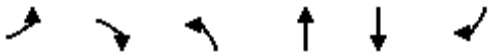
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	123	408	480	8	10	107
Future Vol, veh/h	123	408	480	8	10	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	100	0	68
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	132	439	516	9	11	115

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	516	0	-	0	1219	516
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	703	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1050	-	-	-	199	559
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	491	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1050	-	-	-	166	559
Mov Cap-2 Maneuver	-	-	-	-	166	-
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	409	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1050	-	-	-	166	559
HCM Lane V/C Ratio	0.126	-	-	-	0.065	0.206
HCM Control Delay (s)	8.9	0	-	-	28.2	13.1
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.2	0.8

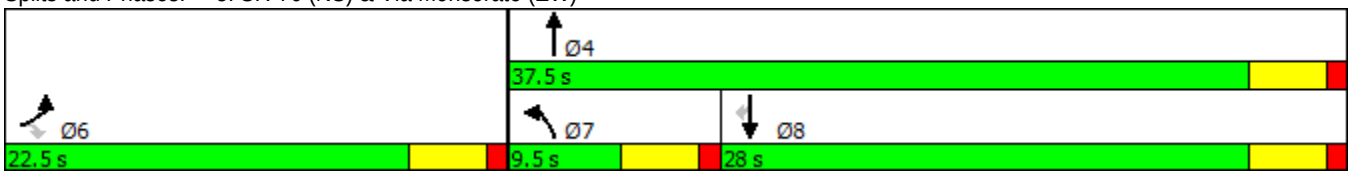


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	10	6	1515	1124	67
Future Volume (vph)	20	10	6	1515	1124	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	550			500
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		11				72
Link Speed (mph)	30			30	30	
Link Distance (ft)	1025			6793	3274	
Travel Time (s)	23.3			154.4	74.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	22	11	6	1629	1209	72
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	11	6	1629	1209	72
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	6		7	4	8	
Permitted Phases		6				8

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	6	6	7	4	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	22.5
Total Split (s)	22.5	22.5	9.5	37.5	28.0	28.0
Total Split (%)	37.5%	37.5%	15.8%	62.5%	46.7%	46.7%
Maximum Green (s)	18.0	18.0	5.0	33.0	23.5	23.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	18.0	18.0	5.0	32.1	30.2	30.2
Actuated g/C Ratio	0.30	0.30	0.08	0.54	0.51	0.51
v/c Ratio	0.04	0.02	0.04	0.85	0.67	0.09
Control Delay	15.2	8.8	26.0	17.0	14.6	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	8.8	26.0	17.0	14.6	3.4
LOS	B	A	C	B	B	A
Approach Delay	13.1			17.1	14.0	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 59.1			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 53.5%		ICU Level of Service A	
Analysis Period (min) 15			

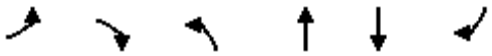
Splits and Phases: 8: SR-76 (NS) & Via Monserate (EW)



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	10	6	1515	1124	67
Future Volume (veh/h)	20	10	6	1515	1124	67
Number	1	16	7	4	8	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	22	11	6	1629	1209	72
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	552	493	14	1887	1583	708
Arrive On Green	0.31	0.31	0.01	0.53	0.45	0.45
Sat Flow, veh/h	1774	1583	1774	3632	3632	1583
Grp Volume(v), veh/h	22	11	6	1629	1209	72
Grp Sat Flow(s),veh/h/ln	1774	1583	1774	1770	1770	1583
Q Serve(g_s), s	0.5	0.3	0.2	23.0	16.6	1.5
Cycle Q Clear(g_c), s	0.5	0.3	0.2	23.0	16.6	1.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	552	493	14	1887	1583	708
V/C Ratio(X)	0.04	0.02	0.43	0.86	0.76	0.10
Avail Cap(c_a), veh/h	552	493	153	2020	1583	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.9	13.8	28.5	11.7	13.4	9.3
Incr Delay (d2), s/veh	0.1	0.1	19.1	3.9	2.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.3	0.2	12.1	8.6	0.7
LnGrp Delay(d),s/veh	14.0	13.9	47.6	15.6	15.7	9.3
LnGrp LOS	B	B	D	B	B	A
Approach Vol, veh/h	33			1635	1281	
Approach Delay, s/veh	14.0			15.7	15.3	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				35.3		22.5	5.0	30.4
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				33.0		18.0	5.0	23.5
Max Q Clear Time (g_c+I1), s				25.0		2.5	2.2	18.6
Green Ext Time (p_c), s				5.8		0.0	0.0	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	11	25	294	127	24
Future Volume (vph)	16	11	25	294	127	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	100	150			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.978	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1822	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1822	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	531			4215	454	
Travel Time (s)	12.1			95.8	10.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	12	27	316	137	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	12	27	316	163	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane					Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.5%		ICU Level of Service A	
Analysis Period (min) 15			

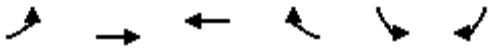
Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	11	25	294	127	24
Future Vol, veh/h	16	11	25	294	127	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	150	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	12	27	316	137	26

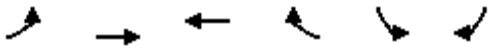
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	519	149	162	0	-	0
Stage 1	149	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	517	898	1417	-	-	-
Stage 1	879	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	507	898	1417	-	-	-
Mov Cap-2 Maneuver	628	-	-	-	-	-
Stage 1	879	-	-	-	-	-
Stage 2	686	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1417	-	628	898	-	-
HCM Lane V/C Ratio	0.019	-	0.027	0.013	-	-
HCM Control Delay (s)	7.6	-	10.9	9.1	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0	-	-



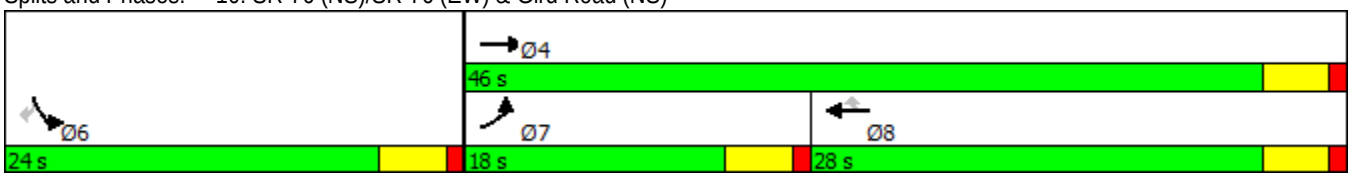
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	269	1232	1042	79	44	185
Future Volume (vph)	269	1232	1042	79	44	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	490			490	0	228
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				80		187
Link Speed (mph)		30	30		50	
Link Distance (ft)		3274	12216		4215	
Travel Time (s)		74.4	277.6		57.5	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	272	1244	1053	80	44	187
Shared Lane Traffic (%)						
Lane Group Flow (vph)	272	1244	1053	80	44	187
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6

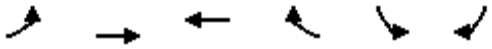


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	18.0	46.0	28.0	28.0	24.0	24.0
Total Split (%)	25.7%	65.7%	40.0%	40.0%	34.3%	34.3%
Maximum Green (s)	13.5	41.5	23.5	23.5	19.5	19.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effct Green (s)	12.6	41.5	24.4	24.4	7.3	7.3
Actuated g/C Ratio	0.22	0.72	0.42	0.42	0.13	0.13
v/c Ratio	0.70	0.49	0.70	0.11	0.20	0.52
Control Delay	32.8	4.6	17.6	3.9	24.5	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	4.6	17.6	3.9	24.5	9.9
LOS	C	A	B	A	C	A
Approach Delay		9.6	16.7		12.7	
Approach LOS		A	B		B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 57.8			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 59.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 10: SR-76 (NS)/SR-76 (EW) & Gird Road (NS)

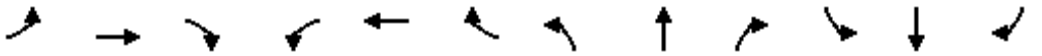




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	269	1232	1042	79	44	185
Future Volume (veh/h)	269	1232	1042	79	44	185
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	272	1244	1053	80	44	187
Adj No. of Lanes	1	2	2	1	1	1
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	325	2467	1551	694	270	241
Arrive On Green	0.18	0.70	0.44	0.44	0.15	0.15
Sat Flow, veh/h	1774	3632	3632	1583	1774	1583
Grp Volume(v), veh/h	272	1244	1053	80	44	187
Grp Sat Flow(s),veh/h/ln	1774	1770	1770	1583	1774	1583
Q Serve(g_s), s	8.8	9.8	14.2	1.8	1.3	6.8
Cycle Q Clear(g_c), s	8.8	9.8	14.2	1.8	1.3	6.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	325	2467	1551	694	270	241
V/C Ratio(X)	0.84	0.50	0.68	0.12	0.16	0.78
Avail Cap(c_a), veh/h	402	2467	1551	694	581	518
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	4.2	13.4	9.9	22.0	24.3
Incr Delay (d2), s/veh	12.0	0.7	2.4	0.3	0.3	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	4.9	7.4	0.8	0.6	6.0
LnGrp Delay(d),s/veh	35.5	5.0	15.8	10.2	22.2	29.6
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		1516	1133		231	
Approach Delay, s/veh		10.4	15.4		28.2	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				46.0		13.5	15.4	30.6
Change Period (Y+Rc), s				4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s				41.5		19.5	13.5	23.5
Max Q Clear Time (g_c+I1), s				11.8		8.8	10.8	16.2
Green Ext Time (p_c), s				21.7		0.5	0.2	6.6

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

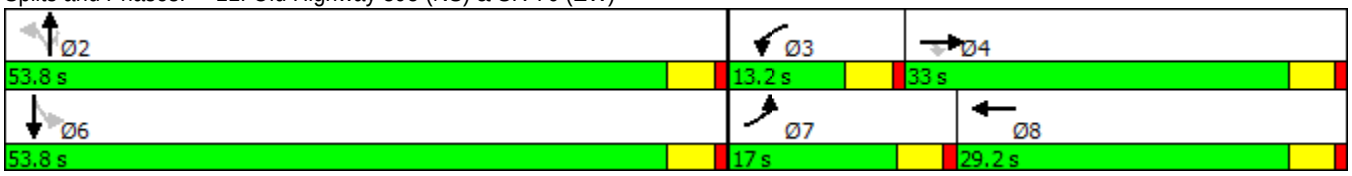


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	990	84	57	896	450	106	252	91	170	105	90
Future Volume (vph)	210	990	84	57	896	450	106	252	91	170	105	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	503		0	275		0	0		194	0		0
Storage Lanes	1		1	1		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850		0.950				0.850		0.931	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	4831	0	1770	1863	1583	3433	1734	0
Flt Permitted	0.950			0.950			0.537			0.415		
Satd. Flow (perm)	1770	5085	1583	1770	4831	0	1000	1863	1583	1500	1734	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88		121				95		61	
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		12216			518			1079			789	
Travel Time (s)		151.4			6.4			24.5			17.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	219	1031	88	59	933	469	110	263	95	177	109	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	219	1031	88	59	1402	0	110	263	95	177	203	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2		2	6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		53.5	53.5	53.5	42.5	42.5	
Total Split (s)	17.0	33.0	33.0	13.2	29.2		53.8	53.8	53.8	53.8	53.8	
Total Split (%)	17.0%	33.0%	33.0%	13.2%	29.2%		53.8%	53.8%	53.8%	53.8%	53.8%	
Maximum Green (s)	12.5	28.5	28.5	8.7	24.7		49.3	49.3	49.3	49.3	49.3	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max	Max	None	Max		None	None	None	None	None	
Walk Time (s)		7.0	7.0				7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		11.0	11.0				42.0	42.0	42.0	31.0	31.0	
Pedestrian Calls (#/hr)		0	0				0	0	0	0	0	
Act Effct Green (s)	12.6	34.5	34.5	7.3	24.8		14.8	14.8	14.8	14.8	14.8	
Actuated g/C Ratio	0.19	0.53	0.53	0.11	0.38		0.23	0.23	0.23	0.23	0.23	
v/c Ratio	0.65	0.39	0.10	0.30	0.74		0.49	0.63	0.22	0.53	0.46	
Control Delay	36.7	12.0	3.9	32.0	19.5		29.7	29.9	6.3	28.0	18.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	36.7	12.0	3.9	32.0	19.5		29.7	29.9	6.3	28.0	18.4	
LOS	D	B	A	C	B		C	C	A	C	B	
Approach Delay		15.5			20.0			25.0			22.9	
Approach LOS		B			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 65.7			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 19.3		Intersection LOS: B	
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 11: Old Highway 395 (NS) & SR-76 (EW)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	990	84	57	896	450	106	252	91	170	105	90
Future Volume (veh/h)	210	990	84	57	896	450	106	252	91	170	105	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	219	1031	88	59	933	469	110	262	95	177	109	94
Adj No. of Lanes	1	3	1	1	3	0	1	1	1	2	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	2325	724	87	1213	567	344	555	472	571	276	238
Arrive On Green	0.15	0.46	0.46	0.05	0.36	0.36	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1774	5085	1583	1774	3390	1583	1174	1863	1583	1979	925	797
Grp Volume(v), veh/h	219	1031	88	59	933	469	110	262	95	177	0	203
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1174	1863	1583	990	0	1722
Q Serve(g_s), s	8.3	9.5	2.2	2.3	16.8	18.7	5.7	7.9	3.1	5.5	0.0	6.5
Cycle Q Clear(g_c), s	8.3	9.5	2.2	2.3	16.8	18.7	12.2	7.9	3.1	13.5	0.0	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	263	2325	724	87	1213	567	344	555	472	571	0	513
V/C Ratio(X)	0.83	0.44	0.12	0.68	0.77	0.83	0.32	0.47	0.20	0.31	0.00	0.40
Avail Cap(c_a), veh/h	321	2325	724	224	1213	567	833	1330	1131	1395	0	1230
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.6	12.8	10.8	32.3	19.6	20.2	24.1	19.8	18.1	25.3	0.0	19.3
Incr Delay (d2), s/veh	14.2	0.6	0.3	8.9	4.7	13.1	0.5	0.6	0.2	0.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	4.5	1.0	1.3	8.6	10.1	1.9	4.2	1.4	1.5	0.0	3.1
LnGrp Delay(d),s/veh	42.8	13.4	11.1	41.1	24.4	33.3	24.6	20.4	18.3	25.6	0.0	19.8
LnGrp LOS	D	B	B	D	C	C	C	C	B	C		B
Approach Vol, veh/h		1338			1461			467			380	
Approach Delay, s/veh		18.0			27.9			21.0			22.5	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		25.1	7.9	36.1		25.1	14.7	29.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		49.3	8.7	28.5		49.3	12.5	24.7
Max Q Clear Time (g_c+I1), s		14.2	4.3	11.5		15.5	10.3	20.7
Green Ext Time (p_c), s		5.1	0.0	13.0		5.1	0.1	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	22.8
HCM 2010 LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	619	240	148	427	128	48
Future Volume (vph)	619	240	148	427	128	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962					0.850
Flt Protected				0.987	0.950	
Satd. Flow (prot)	1792	0	0	1839	1770	1583
Flt Permitted				0.987	0.950	
Satd. Flow (perm)	1792	0	0	1839	1770	1583
Link Speed (mph)	50			50	30	
Link Distance (ft)	1346			174	267	
Travel Time (s)	18.4			2.4	6.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	659	255	157	454	136	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	914	0	0	611	136	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 94.9%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	619	240	148	427	128	48
Future Vol, veh/h	619	240	148	427	128	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	659	255	157	454	136	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	914	0	1555	786
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	769	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	746	-	~ 124	392
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	457	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	746	-	~ 89	392
Mov Cap-2 Maneuver	-	-	-	-	264	-
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	329	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	27.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	264	392	-	-	746	-
HCM Lane V/C Ratio	0.516	0.13	-	-	0.211	-
HCM Control Delay (s)	32.3	15.6	-	-	11.1	0
HCM Lane LOS	D	C	-	-	B	A
HCM 95th %tile Q(veh)	2.7	0.4	-	-	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	473	78	51	535	120	57
Future Volume (vph)	473	78	51	535	120	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981					0.850
Flt Protected				0.996	0.950	
Satd. Flow (prot)	1827	0	0	1855	1770	1583
Flt Permitted				0.996	0.950	
Satd. Flow (perm)	1827	0	0	1855	1770	1583
Link Speed (mph)	50			50	30	
Link Distance (ft)	1346			174	267	
Travel Time (s)	18.4			2.4	6.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	498	82	54	563	126	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	580	0	0	617	126	60
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 77.3%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.6

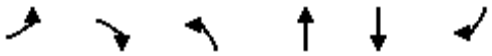
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	473	78	51	535	120	57
Future Vol, veh/h	473	78	51	535	120	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	498	82	54	563	126	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	580	0	1210	539
Stage 1	-	-	-	-	539	-
Stage 2	-	-	-	-	671	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	994	-	202	542
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	508	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	994	-	186	542
Mov Cap-2 Maneuver	-	-	-	-	384	-
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	16.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	384	542	-	-	994	-
HCM Lane V/C Ratio	0.329	0.111	-	-	0.054	-
HCM Control Delay (s)	18.9	12.5	-	-	8.8	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	0.4	-	-	0.2	-

Project Driveway



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	102	230	114	230	41
Future Volume (vph)	18	102	230	114	230	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.886				0.979	
Flt Protected	0.992			0.968		
Satd. Flow (prot)	1637	0	0	1803	1824	0
Flt Permitted	0.992			0.968		
Satd. Flow (perm)	1637	0	0	1803	1824	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	414			247	223	
Travel Time (s)	9.4			5.6	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	111	250	124	250	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	131	0	0	374	295	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

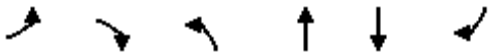
Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	102	230	114	230	41
Future Vol, veh/h	18	102	230	114	230	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	111	250	124	250	45

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	896	272	295	0	-	0
Stage 1	272	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	311	767	1266	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	245	767	1266	-	-	-
Mov Cap-2 Maneuver	245	-	-	-	-	-
Stage 1	774	-	-	-	-	-
Stage 2	421	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	5.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1266	-	581	-	-
HCM Lane V/C Ratio	0.197	-	0.225	-	-
HCM Control Delay (s)	8.5	0	13	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.7	-	0.9	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	102	64	301	127	11
Future Volume (vph)	18	102	64	301	127	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.886				0.989	
Flt Protected	0.992			0.991		
Satd. Flow (prot)	1637	0	0	1846	1842	0
Flt Permitted	0.992			0.991		
Satd. Flow (perm)	1637	0	0	1846	1842	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	414			247	223	
Travel Time (s)	9.4			5.6	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	111	70	327	138	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	131	0	0	397	150	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	102	64	301	127	11
Future Vol, veh/h	18	102	64	301	127	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	111	70	327	138	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	610	144	150	0	-	0
Stage 1	144	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	458	903	1431	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	431	903	1431	-	-	-
Mov Cap-2 Maneuver	431	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	594	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	1.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1431	-	776	-	-
HCM Lane V/C Ratio	0.049	-	0.168	-	-
HCM Control Delay (s)	7.6	0	10.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	-	-

Kunzman Associates, Inc.

OVER 40 YEARS OF EXCELLENT SERVICE

1111 Town & Country Road, Suite 34
Orange, California 92868
(714) 973-8383

www.traffic-engineer.com

Appendix R

Project Facility Availability – Water

ESA

County of San Diego, Planning & Development Services
PROJECT FACILITY AVAILABILITY - WATER
ZONING DIVISION

Please type or use pen

Bonsall Unified School District — 760-631-5200
Owner's Name — Phone

31505 Old River Road
Owner's Mailing Address — Street

Bonsall — CA — 92003
City — State — Zip

ORG_____ **W**
ACCT_____
ACT_____
TASK_____
DATE 10/13/17 AMT $ 250 CC

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A.
- ☐ Major Subdivision (TM)
- ☐ Minor Subdivision (TPM)
- ☐ Boundary Adjustment
- ☐ Rezone (Reclassification) from_____ to _____ zone.
- ☐ Major Use Permit (MUP), purpose:_____
- ☐ Time Extension...Case No._____
- ☐ Expired Map...Case No._____
- ☒ Other Proposed 1,500 student High School
- ☐ Specific Plan or Specific Plan Amendment
- ☐ Certificate of Compliance:_____

B.
- ☐ Residential . . . . . Total number of dwelling units_____
- ☐ Commercial. . . . . Gross floor area_____
- ☐ Industrial . . . . . Gross floor area_____
- ☒ Other . . . . . Gross floor area 150,500 SF

C. ☐ Total Project acreage _____ Total number of lots_____

D. Is the project proposing the use of groundwater? ☐ Yes ☒ No
Is the project proposing the use of reclaimed water? ☐ Yes ☒ No

Assessor's Parcel Number(s)
(Add extra if necessary)

124-340-34-00	

Thomas Guide Page _____ Grid _____

approx 3750 Gird Road, Fallbrook, CA
Project address — Street

Fallbrook Planning Group
Community Planning Area/Subregion — Zip

Owner/Applicant agrees to pay all necessary construction costs, dedicate all district required easements to extend service to the project and COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

Applicant's Signature: [signature] Date: 10/10/2017

Address: 31505 Old River Road, Bonsall, CA 92003 Phone: 760-631-5200

(On completion of above, present to the district that provides water protection to complete Section 2 below.)

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District Name: Rainbow Municipal Water District Service area Fallbrook / Rainbow

A.
- ☒ Project is in the district.
- ☐ Project is not in the district but is within its Sphere of Influence boundary, owner must apply for annexation.
- ☐ Project is not in the district and is not within its Sphere of Influence boundary.
- ☐ The project is not located entirely within the district and a potential boundary issue exists with the _____ District.

B. ☒ Facilities to serve the project ☒ ARE ☐ ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached_____. (Number of sheets)

☐ Project will not be served for the following reason(s):_____

C.
- ☐ **District conditions are attached. Number of sheets attached:**_____
- ☐ **District has specific water reclamation conditions which are attached. Number of sheets attached:**_____
- ☒ **District will submit conditions at a later date.**

D. ☐ **How far will the pipeline(s) have to be extended to serve the project?**_____

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

Authorized Signature: [signature] Print Name Michael Pawers

Print Title Acting Engineering Manager Phone (760) 728-1178 Date 10/26/2017

NOTE: THIS DOCUMENT IS NOT A COMMITMENT OF SERVICE OR FACILITIES BY THE DISTRICT
On completion of Section 2 and 3 by the District, applicant is to submit this form with application to:
Planning & Development Services – Zoning Counter, 5510 Overland Ave, Suite 110, San Diego, CA 92123

County of San Diego, Planning & Development Services
PROJECT FACILITY AVAILABILITY - SEWER
ZONING DIVISION

Please type or use pen

Bonsall Unified School District 760-631-5200
Owner's Name Phone

31505 Old River Road
Owner's Mailing Address Street

Bonsall CA 92003
City State Zip

ORG_____
ACCT_____
ACT_____
TASK_____
DATE 10/13/17 AMT $ 250

S

DISTRICT CASHIER'S USE ONLY

SECTION 1. PROJECT DESCRIPTION — TO BE COMPLETED BY APPLICANT

A.
- ☐ Major Subdivision (TM) ☐ Certificate of Compliance:_____
- ☐ Minor Subdivision (TPM) ☐ Boundary Adjustment
- ☐ Specific Plan or Specific Plan Amendment
- ☐ Rezone (Reclassification) from_____ to_____ zone
- ☐ Major Use Permit (MUP), purpose:_____
- ☐ Time Extension...Case No._____
- ☐ Expired Map...Case No._____
- ☒ Other Proposed 1,500 student Bonsall High School

B.
- ☐ Residential . . . . . Total number of dwelling units_____
- ☐ Commercial. . . . . Gross floor area_____
- ☐ Industrial . . . . . Gross floor area_____
- ☒ Other . . . . . Gross floor area 150,500 SF

C. Total Project acreage 39.5 Total lots_____ Smallest proposed lot_____

D. Is the project proposing its own wastewater treatment plant? Yes ☐ No ☒
Is the project proposing the use of reclaimed water? ☐ ☒

Assessor's Parcel Number(s) (Add extra if necessary)

124-340-34-00	

Thomas Guide Page _____ Grid _____

3750 Gird Road, Fallbrook, CA
Project address Street

Fallbrook Planning Group
Community Planning Area/Subregion Zip

Owner/Applicant agrees to pay all necessary construction costs and dedicate all district required easements to extend service to the project.
OWNER/APPLICANT MUST COMPLETE ALL CONDITIONS REQUIRED BY THE DISTRICT.

X Applicant's Signature: _____ Date: 10/10/17

Address: 31505 Old River Road, Bonsall, CA 92003 Phone: 760-631-5200

(On completion of above, present to the district that provides sewer protection to complete Section 2 below.)

SECTION 2: FACILITY AVAILABILITY — TO BE COMPLETED BY DISTRICT

District name Rainbow Municipal Water District Service area Fallbrook / Rainbow

A.
- ☒ Project is in the District.
- ☐ Project is not in the District but is within its Sphere of Influence boundary, owner must apply for annexation.
- ☐ Project is not in the District and is not within its Sphere of Influence boundary.
- ☐ Project is not located entirely within the District and a potential boundary issue exists with the _____ District.

B. ☒ Facilities to serve the project ☒ ARE ☐ ARE NOT reasonably expected to be available within the next 5 years based on the capital facility plans of the district. Explain in space below or on attached. Number of sheets attached:_____

☐ Project will not be served for the following reason(s): _____

C.
- ☐ **District conditions are attached. Number of sheets attached:**_____
- ☐ **District has specific water reclamation conditions which are attached. Number of sheets attached:**_____
- ☒ **District will submit conditions at a later date.**

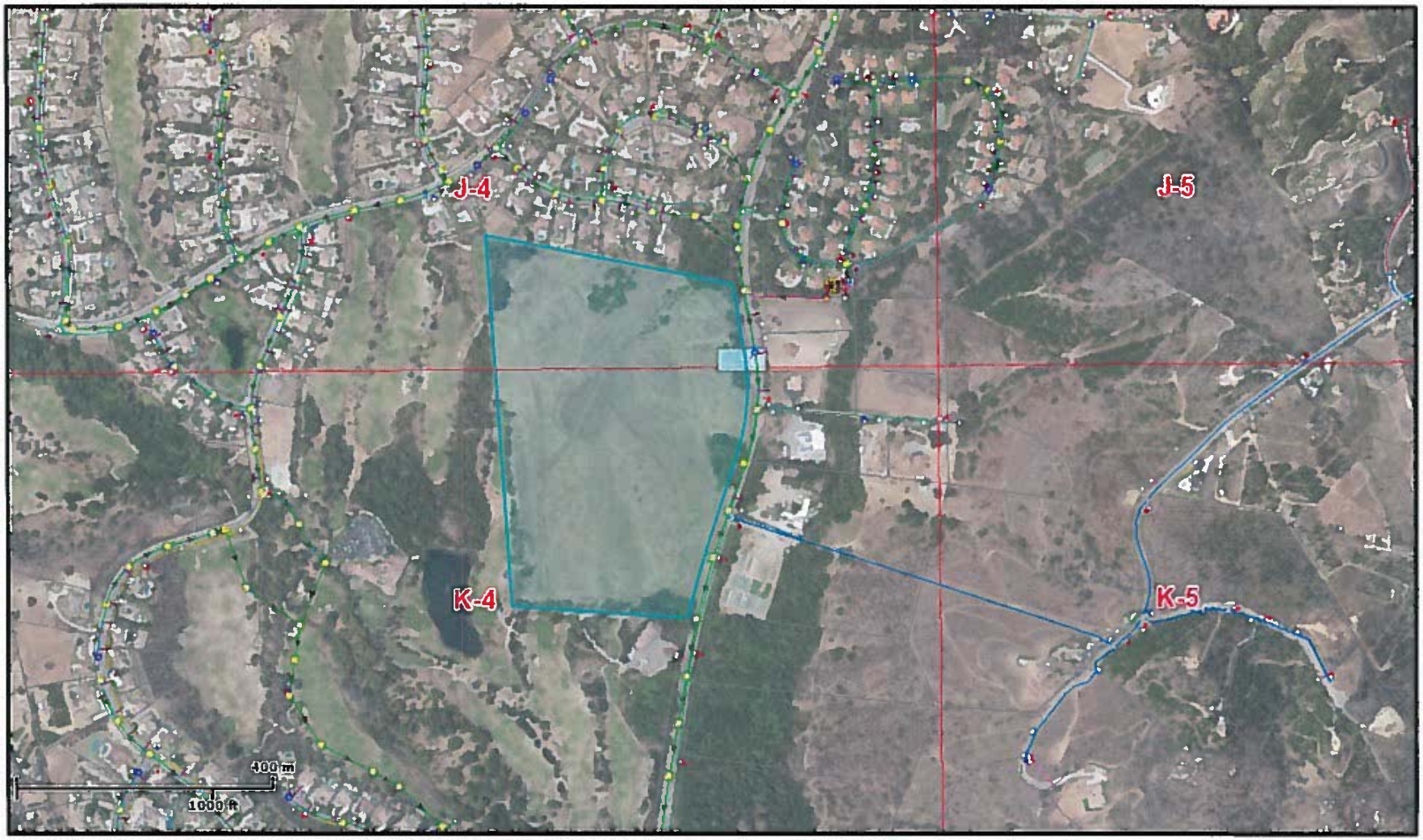
D. ☐ **How far will the pipeline(s) have to be extended to serve the project?** _____

This Project Facility Availability Form is valid until final discretionary action is taken pursuant to the application for the proposed project or until it is withdrawn, unless a shorter expiration date is otherwise noted.

Authorized Signature — Michael Powers, Acting Engg Manager (760) 728-1178 — *Print Name and Title* — *Phone* — 10/26/2017 *Date*

THIS DOCUMENT IS NOT A COMMITMENT OF FACILITIES OR SERVICE BY THE DISTRICT *On completion of Section 2 by the district, applicant is to submit this form with application to: Planning & Development Services, Zoning Counter, 5510 Overland Ave. Suite 110 San Diego, CA 92123*

124-340-34 Proposed High School (BUSD)



1" = 752 ft	Sub Title	10/16/2017	N W E S	RAINBOW MUNICIPAL WATER DISTRICT

This map represents a visual display of related geographic information. Data provided hereon is not a guarantee of actual field conditions. To be sure of complete accuracy, please contact Rainbow Water District staff for the most up-to-date information.

Rainbow Municipal Water District
3707 Old Highway 395
Fallbrook CA 92028
760-728-1178
www.rainbowmwd.com

*********RECEIPT*********

10/13/2017
08:37 AM

BONSALL UNIFIED SCHOOL DIST.

CR	500.00
Sewer Availability Letter	250.00
Water Availability Letter	250.00

Payment Method-
Cash$ 0.00
Check $500.00 CK#1387 / 1388
Other $ 0.00

Change 0.00
Receipt Total $ 500.00

Balance-$0.00

Thank you!

BONSALL UNIFIED SCHOOL DISTRICT
31505 OLD RIVER ROAD
BONSALL, CA 92003
DISTRICT REVOLVING CASH ACCOUNT
(760) 631-5200

PACIFIC WESTERN BANK
5256 S. MISSION ROAD, SUITE 1001
BONSALL, CA 92003
90-3820/1222

1387

10/11/2017

PAY TO THE ORDER OF Rainbow Water District $ **250.00

Two Hundred Fifty Only****** DOLLARS

3707 Old Highway 395
Fallbrook, CA 92028

MEMO Worker Availability Fee

THIS DOCUMENT CONTAINS HEAT SENSITIVE INK. TOUCH OR PRESS HERE. RED IMAGE DISAPPEARS WITH HEAT

⑈001387⑈ ⑆122238200⑆ 10007194 33⑈

ORIGINAL DOCUMENT PRINTED ON CHEMICAL REACTIVE PAPER WITH MICROPRINTED BORDER

BONSALL UNIFIED SCHOOL DISTRICT
31505 OLD RIVER ROAD
BONSALL, CA 92003
DISTRICT REVOLVING CASH ACCOUNT
(760) 631-5200

PACIFIC WESTERN BANK
5256 S. MISSION ROAD, SUITE 1001
BONSALL, CA 92003
90-3820/1222

1388

10/11/2017

PAY TO THE ORDER OF Rainbow Water District $ **250.00

Two Hundred Fifty Only****** DOLLARS

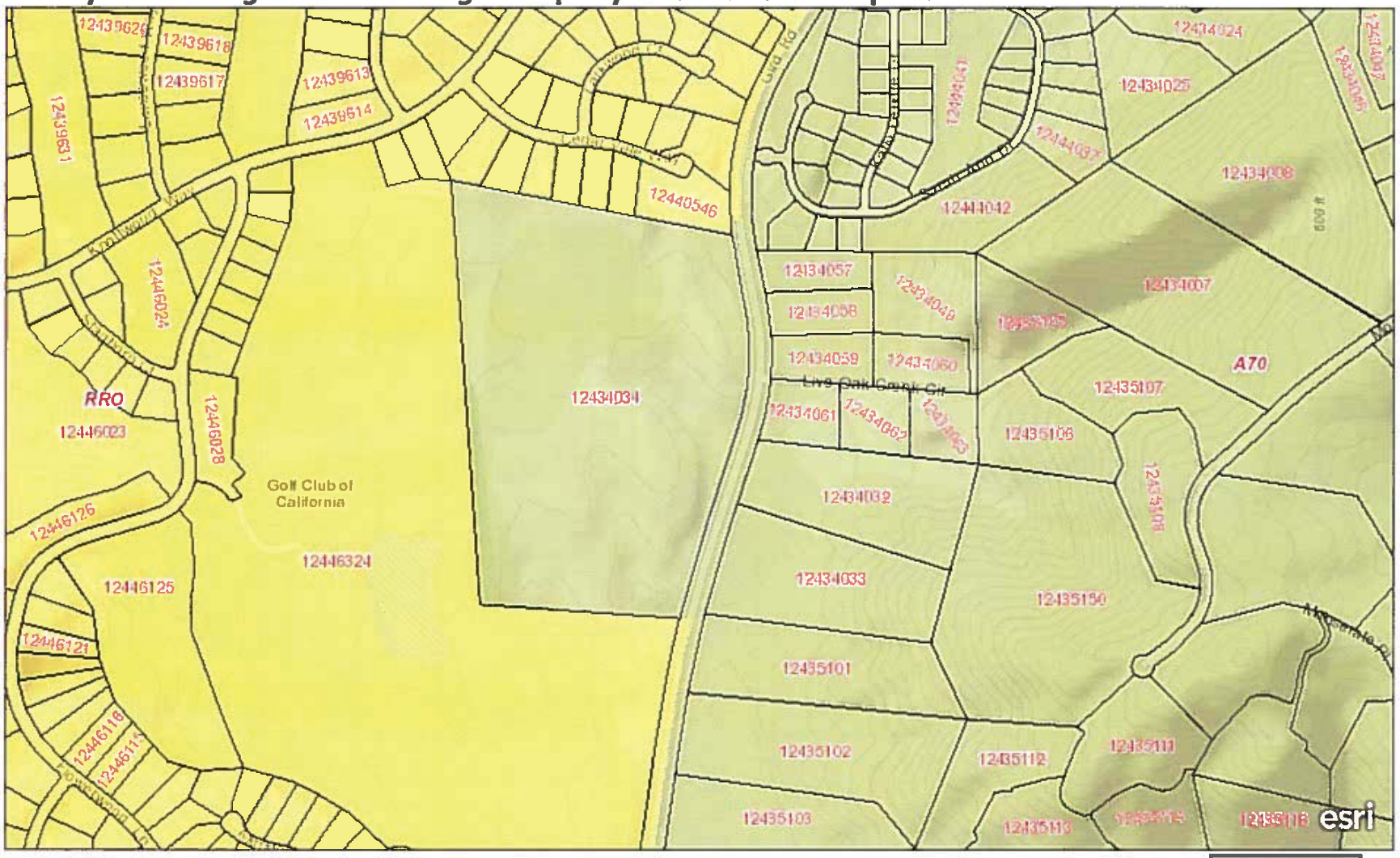
3707 Old Highway 395
Fallbrook, CA 92028

MEMO Sewer Availiability Fee

THIS DOCUMENT CONTAINS HEAT SENSITIVE INK. TOUCH OR PRESS HERE. RED IMAGE DISAPPEARS WITH HEAT

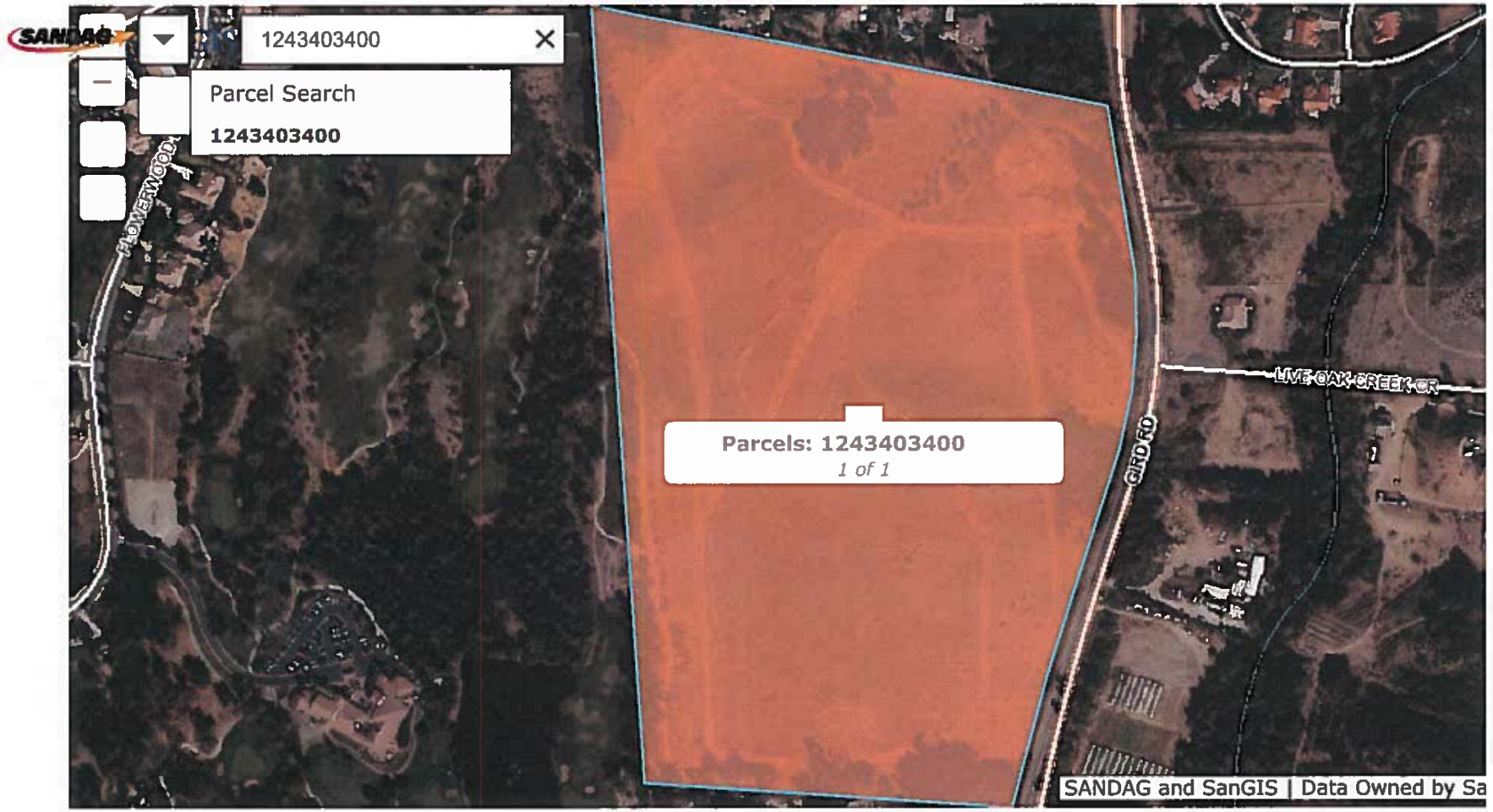
⑈001388⑈ ⑆122238200⑆ 10007194 33⑈

County of San Diego - PDS - Zoning & Property Information - Simplified



Provides Zoning and General Plan information for parcels in the unincorporated County of San Diego - This map is easy to use

Esri, HERE | SanGIS, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA



400ft

33.322 -117.196 Degrees

Appendix S

Hydrology and Water Quality Study

ESA

HYDROLOGY AND WATER QUALITY STUDY

Bonsall High School
Highway 76 at Gird Road
Bonsall, CA 92003

Prepared By:

9449 Balboa Ave., Suite 270
San Diego, CA 92123

Date: January 5, 2018

Table of Contents

1. Purpose 1
2. Project Description 1
3. Existing Conditions 1
4. Proposed Improvements 2
5. Soil Characteristics 2
6. Calculations 3
   - 6.a. IMPERVIOUS AND PERVIOUS AREAS: 3
   - 6.b. RUNOFF COEFFICIENT: 3
   - 6.c. PEAK FLOW RATES: 3
7. Stormwater Quality Control 5
8. Pollutants And Conditions Of Concern 6
9. Post-Construction Stormwater Bmps In New & Redevelopment Projects 8
10. Conclusions 11
11. References 12

Appendices

Site Vicinity Map…….……..……..... Appendix A

Hydrology Exhibits…….……..…… Appendix B

Hydrology Calculations……..……..... Appendix C

Hydrologic Information…..…….….. Appendix D

303(d) Impaired Waters Information……. Appendix E

BMP Design Calculations……..…..…….……. Appendix F

BMP Fact Sheets…….……..... Appendix G

1. Purpose

The purpose of this hydrology and water quality study is to analyze the existing and proposed drainage patterns and peak flow rates associated with the proposed Bonsall High School project. The 100 year, 6-hr storm is the design storm frequency used for this study. The basic design criteria and objectives used in this study are to;

- Analyze the peak flow rate of the 100 year, 6-hour storm frequency at each outlet location.
- Design stormwater best management practices (BMPs) to maintain the 100 year, 6-hour frequency peak flow rate from this development.

This hydrology study is prepared based on the County of San Diego Hydrology Manual (2003 edition).

2. Project Description

The existing site is located northwest of the intersection of Highway 76 and Gird Road (APN: 124-340-34-00) in Bonsall, California.

The project consists of the construction of a new High School Campus. The major development activities include clearing & grubbing, grading, construction of new buildings, paved parking, walkways, basketball courts, a sport field, and landscaping. The project's total disturbed area is approximately 25 acres.

3. Existing Conditions

The existing site has been previously graded but not built out. The existing site contains vegetated slopes and dirt roads. Four Environmentally Sensitive Areas (ESAs) are present on site and will be preserved.

The majority of the site area topography is sloped ranging from 0 to 10%. The existing site is divided in three major drainage basins. Runoff from the western portion of the site (Drainage Basins A, B, C, & D) flows to the west. The southern end of the site (Drainage Basins E & F) flows to the southern property boundary. And Runoff from the eastern portion of the site (Drainage Basins G, H, & I) flows northwest to Grid Road.

See Appendix B for Existing Condition Hydrology Map.

4. Proposed Improvements

Drainage basins and analysis points for the proposed condition match that in the existing condition to the maximum extent practical. The proposed development will mitigate the 100-year, 6-hour storm. The proposed development generally maintains existing flow patterns and peak flow rates of the existing conditions. Because the peak flow rate from the overall site is mitigated, the project will not create adverse impacts to the existing receiving storm drain system and downstream properties.

The major development activities include, clearing & grubbing, grading, construction of new buildings, paved parking, walkways, a basketball court, sport fields, and landscaping. This project will be completed in multiple stages. The initial phase will include grading the entire campus and improvements to the center of the proposed campus. Future phases of this project will include the addition of a sport field, running track, three buildings, and extensions to the parking lot. Proposed Condition hydrology calculations in this report consider the ultimate condition of the site (all phases). Impervious area calculations assume that future phases will have the same impervious area percentage as the first phase, with the exception of the sports field which will be pervious.

Peak flow mitigation will be achieved by routing runoff from the parking structure to four detention basins. These basins will detain runoff from the 100-year, 6-hour storm.

The proposed site complies with water balance requirements through the use of site design measures. Approximately 3 acres of amended soil areas are proposed to meet the requirements of the water balance calculator. The peak flow rate for the 100 year 6 hour storm frequency will be mitigated by detention basins.

The proposed site is flows to three major drainage basins. Runoff from the western portion of the site (Drainage Basins A, B, C, & D) flows to the west. The southern end of the site (Drainage Basins E & F) flows to the southern property boundary. And Runoff from the eastern portion of the site (Drainage Basins G, H, & I) flows northwest to Grid Road.

See the Proposed Condition Hydrology Map in Appendix B for basin delineations.

5. Soil Characteristics

Web soil survey shows that the site consists of Soil Types “C” and “B”. Since 97% of the site is Soil Type C, hydrologic analysis is performed by utilizing Soil Type C.

6. Calculations

6.a. Impervious and Pervious Areas:

The impervious and pervious areas are calculated for both the existing and proposed conditions. The site is designed to increase the impervious area by 461,736 square feet (10.60 ac) as shown in Table 6-1.

Table 6-1. Bonsall High School Impervious Area

	Area (Acres)			Percent Impervious Area	Percent Pervious Area
	Total	Impervious (Ai)	Pervious (Ap)		
Existing	48.96	0.00	48.96	0.0%	100.0%
Proposed	48.96	10.60	38.36	21.7%	78.3%
% Change	0.0%	N/A	-21.6%		

6.b. Runoff Coefficient:

The runoff coefficient for the site is calculated by using equation provided in Section 3.1.2 of the County of San Diego Hydrology Manual. The runoff coefficient C is calculated using the following formula;

C = 0.90 x (% Impervious) + Cp x (1 - % Impervious)

Where,

Cp = Pervious Coefficient Runoff Value for the soil type shown in Table 3-1 as Undisturbed Natural Terrain/Permanent Open Space.

Cp = 0.30 is used for Soil Type C

The runoff coefficients for the existing and proposed conditions are determined to be 0.30 & 0.45 respectively. Calculations are provided in Appendix C.

6.c. Peak Flow Rates:

The rational method estimates the peak rate of runoff as a function of the Runoff Coefficient (C), tributary areas (A), and the Rainfall intensity (I) for a duration equal to the time of concentration (Tc) as follows;

Q = CIA

Where,

Q = Peak Runoff rate (cfs)
C = Runoff Coefficient
I = Rainfall Intensity (in/hr)
A = Tributary Area (acres)

A peak flow rate analysis for the 100-year, 6-hour frequency storm is performed by utilizing the rational method formula. Time of concentrations (Tc) for are determined by utilizing the CivilD computer program. The peak flow rates at each drainage analysis/discharge point are tabulated below for the comparison purposes. See Appendices B, and C for details.

Table 6-2. Peak Flow Summary For Bonsall High School

	Drainage Area (ac)		100 Yr-6 hr Flow (cfs)			
	Existing Condition	Proposed Condition	Existing Condition	Proposed Condition	Mitigated	Change (%)
Discharge Point 1	1.02	1.02	1.87	1.87	1.87	**0.00**
Discharge Point 2	6.07	8.69	8.85	18.99	8.22	**-7.12**
Discharge Point 3	5.29	0.82	9.58	3.07	3.07	**-67.95**
Discharge Point 4	2.68	2.00	5.43	7.82	7.82	**44.01**
Sub-Total 1	**15.06**	**12.53**	**25.73**	**31.75**	**20.98**	**-18.46**
Discharge Point 5	7.93	9.46	10.14	20.47	9.22	**-9.07**
Discharge Point 6	7.52	9.25	10.39	20.34	10.59	**1.92**
Sub-Total 2	**15.45**	**18.71**	**20.53**	**40.81**	**19.81**	**-3.51**
Discharge Point 7	2.10	2.11	3.13	5.13	5.13	**63.90**
Discharge Point 8	10.06	9.05	15.20	24.16	10.68	**-29.74**
Discharge Point 9	1.83	1.83	2.86	2.86	2.86	**0.00**
Discharge Point 10	4.46	4.73	6.64	7.03	7.03	**5.87**
Sub-Total 3	**18.45**	**17.72**	**27.83**	**39.18**	**25.70**	**-7.65**
Total	**48.96**	**48.96**	**74.09**	**111.74**	**66.49**	**-10.26**

The proposed site is analyzed at the outlets of the three major drainage basins. The western basin's peak 100 year, 6 hour peak flow rate was reduced from 25.73 to 20.98 cfs. The Southern basin's peak flow rate was reduced from 20.53 to 19.81. And the peak flow rate of the eastern basin was reduced from 27.83 to 25.70.

The overall site experiences a reduction of the 100 year, 6 hour peak flow rate from 111.74 cfs to 66.49 cfs. The peak flow rate mitigation though detention is summarized in Table 6-3.

The routing of peak flow rates through the detention basins is analyzed with *Hydraflow Hydrographs Express Extension* for AutoCad Civil 3D. Inflow hydrographs, basin geometries, and the hydraulic performances of the outlet structures are utilized as input for the model. Peak inflow hydrographs for the basins are developed utilizing the Rick Engineering Rational Hydrograph Generator. Civil-D results and other hydrologic information such as discharge rates, rainfall depths, runoff coefficients and time of concentrations are analyzed to develop a hydrograph. The inflow hydrograph is then manually entered into the Hydraflow Hydrographs software to determine the peak flow rate attenuation achieved by the detention basins.

Table 6-3. Peak Flow Reduction Through Detention

	Detention Peak Flow Rate (cfs)			Surface Detention Volume (cf)
	Inflow	**Outflow**	**Detained**	
Detention #1	17.51	6.74	10.77	20,072
Detention #2	19.05	7.80	11.25	14,792
Detention #3	16.95	7.20	9.75	13,085
Detention #4	19.34	5.86	13.48	27,896
Total	**72.85**	**27.60**	**45.25**	**75,845**

7. Stormwater Quality Control

Bonsall Unified School District is expected to obtained water quality coverage under the U.S. Environmental Protection Agency's (EPA) Phase II Small Municipal Separate Storm Sewer System (MS4) rule. The EPA Storm Water Phase II Rule establishes a storm water management program for small and non-traditional municipal separate storm sewer systems (MS4s), such as Universities and State & Federal Agencies.

NPDES Phase II regulations require operators of small MS4s to develop, implement, and enforce a storm water management program designed to:

- Reduce the discharge of pollutants to the "Maximum Extent Practicable" (MEP);
- Protect water quality; and
- Satisfy the appropriate water quality requirements of the CWA and Regional Water Quality Control Board (RWQCB) Basin Plans.

As a requirement of the Phase II Rule, Bonsall Unified School District complies with "Minimum Control Measures" to be implemented within the District. The term "Minimum Control Measures" is used by the EPA for the six MS4 program elements aimed at achieving improved water quality through NPDES Phase II requirements listed below:

1) Public Education and Outreach on Stormwater Impacts
2) Public Involvement/Participation
3) Illicit Discharge Detection and Elimination,
4) Pollution Prevention/ Good House Keeping
5) Construction Site Runoff Control,
6) Post Construction Storm Water Management in New Development and Redevelopment

This report will focus primarily on how Post Construction Storm Water Management is implemented into the project design using site design, source control, and structural pollutant control BMPs. The intent of this program is to develop, implement, and enforce a program to address discharges of post-construction storm water runoff from new development and redevelopment areas. The Post Construction Stormwater Management strategies implemented to this project is further discussed in Section 9.

8. Pollutants and Conditions of Concern

Watershed Contribution

This project is located in Region Number 9, San Luis Rey Hydrologic Unit, Lower San Luis Rey Hydrologic Area and Bonsall Hydrologic Subarea (HSA 903.12) as defined in the Regional Water Quality Control Board's Water Quality Control Plan. The site discharges indirectly into San Luis Rey River which ultimately drains to the Pacific Ocean.

The Federal Emergency Management Agency (FEMA) categorizes the project site as Zone X, where Zone X is area determined to be outside 500-year floodplain (FIRM Panel 0073C0480G).

303(d) Status

According to the California 2012 303(d) list, the following impairments have been found in the receiving water bodies for the site runoff.

- San Luis Rey River: Chloride, Enterococcus, Fecal Coliform, Phosphorus, Total Dissolved Solids, Total Nitrogen as N, Toxicity.
- Pacific Ocean Shoreline at San Luis Rey River mouth: Enterococcus, Total Coliform.

See Appendix E for details

Impact to Hydrologic Regime

The proposed hydrologic regime or drainage pattern for the site will change slightly due to the proposed improvements, but will maintain the existing discharge locations. Similarly, all drainage basins are required to maintain the same 100-year, 6-hour peak

flow rate as in the existing condition, and therefore adverse impact to the hydrologic regime is not anticipated to result from this development.

Anticipated Pollutants

The following list of anticipated and potential pollutants of concern are developed from Table 2-1 (Table 8-1 of this report), of the County of San Diego SUSMP Manual (2011).

Project Category(ies)	**General Pollutants**	
	Anticipated Pollutants	**Potential Pollutants**
Commercial Development, Parking Lot	Sediment	
	Nutrients	Organic Compounds
	Heavy Metals	Bacteria & Viruses
	Trash & Debris	
	Oxygen Demanding Substances	
	Oil & Grease	

Anticipated pollutants likely to be generated from this site is evaluated with the known impairments of the receiving water bodies to determine the primary pollutants of concern for the site. Sediment, Metals, and Nutrients are likely to be generated from the site and the receiving water body (San Luis Rey River) is also impaired for these pollutants.

Table 8-1: Anticipated and potential pollutants by project type (Reproduced from Table 2-1 of the County of San Diego SUSMP, 2011)

Priority Project Categories	**General Pollutant Categories**								
	Sediment	**Nutrients**	**Heavy Metals**	**Organic Compounds**	**Trash & Debris**	**Oxygen Demanding Substances**	**Oil & Grease**	**Bacteria & Viruses**	**Pesticides**
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	P(1)	P(2)	P	X
Commercial Development >one acre	**P(1)**	**P(1)**	**X**	**P(2)**	**X**	**P(5)**	**X**	**P(3)**	**P(5)**
Heavy Industry	X		X	X	X	X	X		
Automotive Repair Shops			X	X(4)(5)	X		X		

Priority Project Categories	General Pollutant Categories								
	Sediment	**Nutrients**	**Heavy Metals**	**Organic Compounds**	**Trash & Debris**	**Oxygen Demanding Substances**	**Oil & Grease**	**Bacteria & Viruses**	**Pesticides**
Restaurants					X	X	X	X	P(1)
Hillside Development >5,000 ft2	X	X			X	X	X		X
Parking Lots	**P(1)**	**P(1)**	**X**		**X**	**P(1)**	**X**		**P(1)**
Retail Gasoline Outlets			X	X	X	X	X		
Streets, Highways & Freeways	X	P(1)	X	X(4)	X	P(5)	X	X	P(1)

X = anticipated
P = potential
(1) A potential pollutant if landscaping exists on-site.
(2) A potential pollutant if the project includes uncovered parking areas.
(3) A potential pollutant if land use involves food or animal waste products.
(4) Including petroleum hydrocarbons.
(5) Including solvents.

9. Post-Construction Stormwater BMPs in New & Redevelopment Projects

The project creates more than 5,000 sf of impervious area. Therefore, a Post-Construction Storm Water Management Plan which includes Site Design, Source Control, and Treatment Control/baseline hydromodification BMPs is implemented. A Post-Construction Management Checklists are also included in Appendix F of this report.

Site Design Measures (**BMPs):** Site design BMPs aim to treat and control runoff volume. These BMPs preserve natural areas and minimize development impact through improvements. Table 9-1 lists the practices that will be implemented for the proposed development.

Table 9-1

☒ Stream Setbacks & Buffer	☒ Tree Planting and Preservation
☒ Soil Quality Improvement & Maintenance	☒ Rooftop & Impervious Area Disconnection
☐ Porous Pavement	☐ Green Roofs
☐ Vegetated Swales	☐ Rain Barrels & Cisterns

Native or drought tolerant plants will be utilized to the maximum extent feasible. Soil compaction will be minimized within the landscape areas. The runoff originating from impervious areas is discharged into adjacent landscaping prior to discharging to the storm drain system.

Source Control Measures

Source-control measures reduce the amount of runoff from the site and prevent pollutants from contaminating the site's runoff. Source-control BMPs are often the most effective to address non-storm (dry-weather) flows. Table 9-2 lists source-control BMPs and indicates the practices that will be implemented at the project site.

Table 9-2 Source-control BMP alternatives

☐ Housekeeping for outdoor work area
☒ Spill control and cleanup for outdoor spills or leaks
☐ Marine activities
☐ Loading dock management
☐ Outdoor washing/cleaning
☐ Fueling operations
☒ Maintenance on equipment containing water (e.g., eyewash showers, boiler drain lines, condensate drain lines, rooftop equipment, and drainage sumps
☐ Equipment, vehicle, and boat maintenance
☒ Trash management
☐ Hazardous materials management
☐ Hazardous waste management
☒ Potable water system flushing
☒ Fire sprinkler and hydrant testing/flushing
☒ Landscape management: irrigation runoff, erosion, gen waste
☐ Food service management
☒ Sanitary sewer overflows/line blockage
☐ Onsite transportation of materials/waste
☒ Surface cleaning/pressure washing
☒ Outdoor painting and sandblasting
☒ Storm water conveyance system management to prevent improper discharge into storm drains
☒ Non-storm water discharges
☒ Integrated pest management
☒ Building repairs and remodeling
☒ Parking lot and storage area management
☒ Pools, decorative fountains, and other water features

See Post Construction Stormwater Management Checklist in Appendix F for details.

Structural Treatment Control Measures are required only if the site design measures cannot fully meet the water balance requirement. This development is able to meet the water balance requirements by using source control measures, and therefore no post-construction pollutant control measures are necessary. Four detention basins are proposed for peak flow rate attenuation, however, these basins are not required or designed to provide pollutant control.

10. Conclusions

The proposed construction of the Bonsall High School campus will mitigate water quantity and quality impacts to the maximum extent practical through the use of Best Management Practices. The existing drainage system and flow pattern will not be significantly altered in the proposed condition. The existing receiving system will continue to receive runoff from the site through multiple discharge points. The peak flow rates resulting from the 100 year, 6 hour storm in the existing and proposed conditions are calculated and compared to determine the impact due to the development.

Four detention basins are proposed to mitigate the drainage impacts due to the development. Peak flow rates due to the 100 year 6-hour storm event are routed to determine the required mitigation. The cumulative peak flow rate mitigated by the basins and as a result, the total peak flow rate from the site will be reduced from 111.74 to 66.49 cfs, which is 7.60 cfs less than existing condition. No adverse impact to the receiving drainage system is anticipated because the proposed peak flow rate will be less than existing.

The site is designed to meet the water balance requirements by utilizing source control and site design BMPs. As a result, storm water treatment/baseline hydromodification measures are not required for this site. The proposed detention basins are provided solely to control the peak flow rate of the 100 year, 6 hour storm event.

The downstream drainage system is assumed to have capacity to convey runoff from the peak 100 year storm event. Therefore, offsite drainage analysis is not performed.

11. References

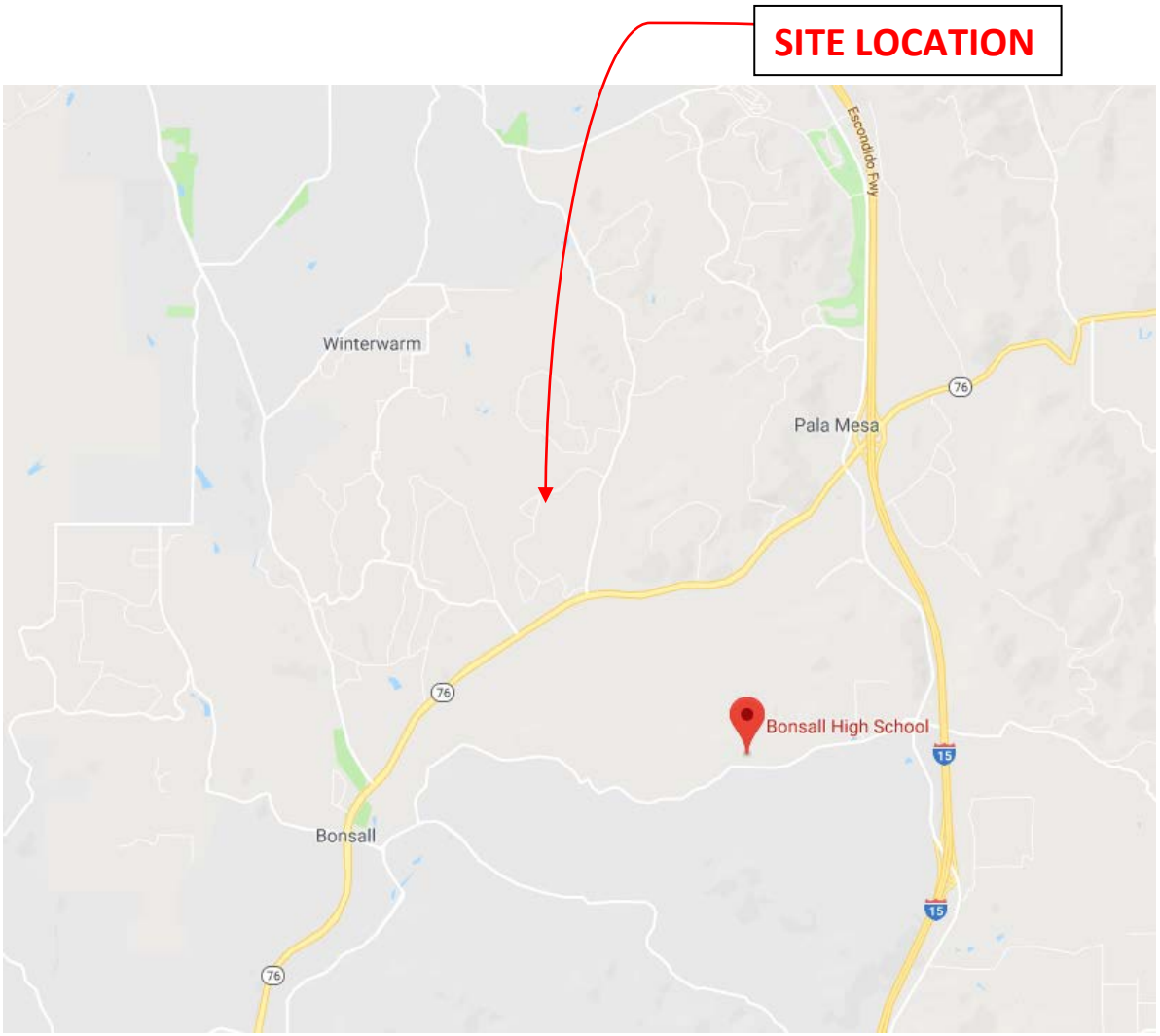
County of San Diego Hydrology Manual (2003)

County of San Diego, 2007. Department of Planning and Land Use. (December 31, 2007) Low Impact Development Handbook. Stormwater Management Strategies.

California Stormwater BMP Handbook New Development and Redevelopment (2003)

APPENDIX A:

Site Vicinity Map



VICINITY MAP

IMAGERY MAP

APPENDIX B:

Hydrology Exhibits

LEGEND

	SYMBOL
OUTER BASIN BOUNDARY	
MAJOR BASIN BOUNDARY	
MINOR BASIN BOUNDARY	
EXISTING STORM DRAIN	SD
EXISTING CONTOUR	XXX
FLOW DIRECTION	
FLOW PATH	
FLOW LENGTH	L=XXX.X'
NODE/CONTOUR ELEVATION	306.43TG / 301.33IE
HYDROLOGY NODE	200
ANALYSIS/DISCHARGE POINT	1
DRAINAGE BASIN MARKER & AREA (AC)	A-3 / X.XX

50 0 100 200

SCALE IN FEET
1 inch = 100 ft.

BVE
619.299.5550
WWW.BWESD.COM

SYM	DESCRIPTION	DATE	APPR

PROJECT

BONSALL HIGH SCHOOL
SAN DIEGO, CA

SITE ADDRESS
BONSALL HIGH SCHOOL
SAN DIEGO, CA 92003

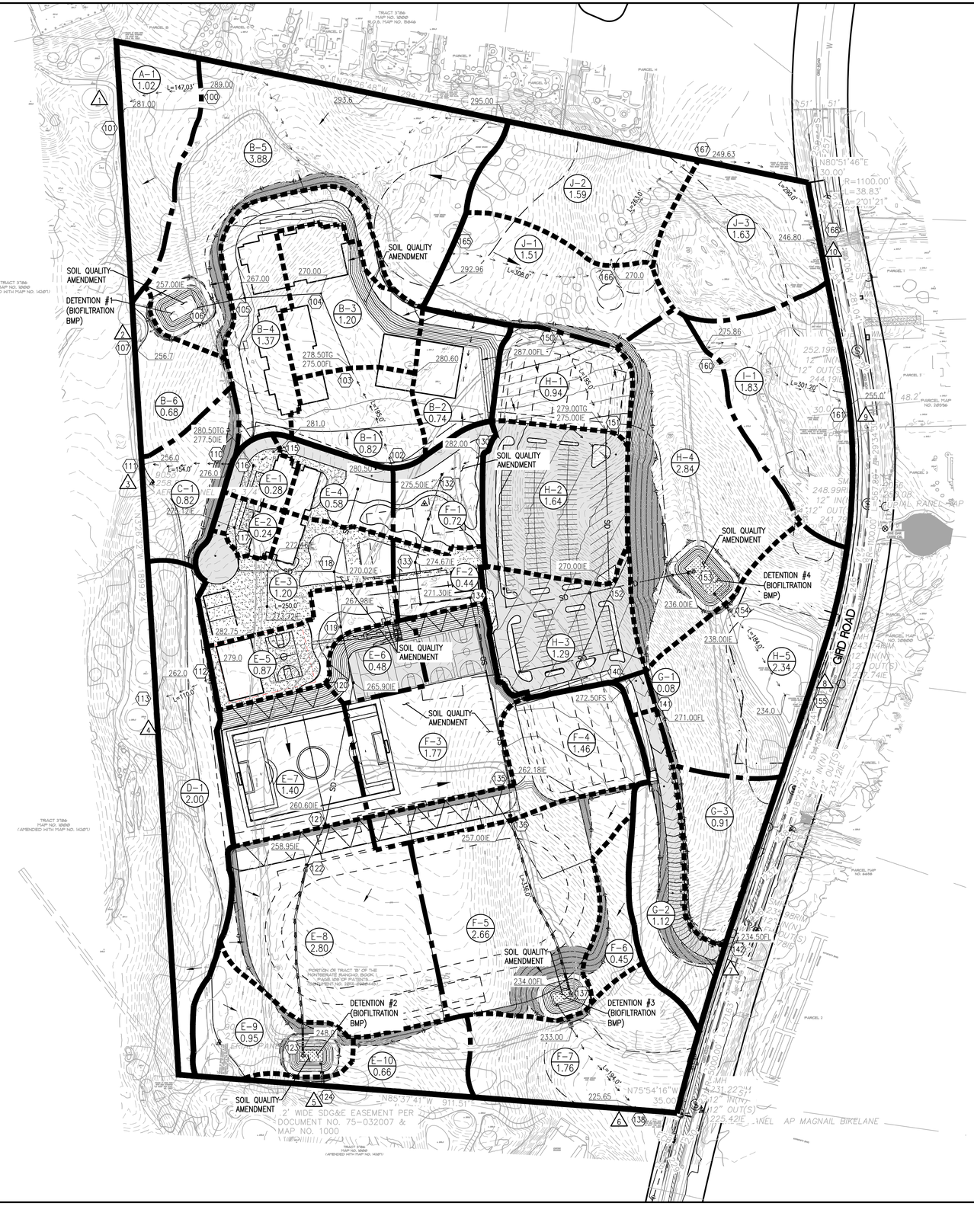
SHEET TITLE

EXISTING CONDITION HYDROLOGY MAP

ISSUE DATE:
DRAWN BY:
CHECKED BY:
BWE JOB NUMBER:
CLIENT JOB NUMBER:
MUNICIPALITY
PROJECT NUMBER:

SHEET 1 OF 1

PLOT: M:\PROJECTS\12500\12520\1.00 BONSALL HS\LDWGS\EXHIBITS\DRAINAGE\12520J1.00-HYDRO_EXIST.DWG Min GC 1/4/2018 2:33 PM



LEGEND

LEGEND	SYMBOL
OUTER BASIN BOUNDARY	
MAJOR BASIN BOUNDARY	
MINOR BASIN BOUNDARY	
EXISTING STORM DRAIN	SD
NEW STORM DRAIN	SD
EXISTING CONTOUR	XXX
NEW CONTOUR	XXX
FLOW DIRECTION	
FLOW PATH	
FLOW LENGTH	L=XXX.X'
NODE/CONTOUR ELEVATION	306.43TG 301.33IE
HYDROLOGY NODE	200
ANALYSIS/EXIT POINT	1
DRAINAGE BASIN MARKER & AREA (AC)	B-X X.XX

PEAK FLOW RATE SUMMARY

	Drainage Area (ac)		100 Yr-6 hr Flow (cfs)			
	Existing Condition	Proposed Condition	Existing Condition	Proposed Condition	Mitigated	Change (%)
Discharge Point 1	1.02	1.02	1.87	1.87	1.87	**0.00**
Discharge Point 2	6.07	8.69	8.85	18.99	8.22	**-7.12**
Discharge Point 3	5.29	0.82	9.58	3.07	3.07	**-67.95**
Discharge Point 4	2.68	2.00	5.43	7.82	7.82	**44.01**
Sub-Total 1	**15.06**	**12.53**	**25.73**	**31.75**	**20.98**	**-18.46**
Discharge Point 5	7.93	9.46	10.14	20.47	9.22	**-9.07**
Discharge Point 6	7.52	9.25	10.39	20.34	10.59	**1.92**
Sub-Total 2	**15.45**	**18.71**	**20.53**	**40.81**	**19.81**	**-3.51**
Discharge Point 7	2.10	2.11	3.13	5.13	5.13	**63.90**
Discharge Point 8	10.06	9.05	15.20	24.16	10.68	**-29.74**
Discharge Point 9	1.83	1.83	2.86	2.86	2.86	**0.00**
Discharge Point 10	4.46	4.73	6.64	7.03	7.03	**5.87**
Sub-Total 3	**18.45**	**17.72**	**27.83**	**39.18**	**25.70**	**-7.65**
Total	**48.96**	**48.96**	**74.09**	**111.74**	**66.49**	**-10.26**

50 0 100 200
SCALE IN FEET
1 inch = 100 ft.

BVE
619.299.5550
WWW.BWESD.COM

SYM	DESCRIPTION	DATE	APPR

ISSUE DATE:
DRAWN BY:
CHECKED BY:
BWE JOB NUMBER:
CLIENT JOB NUMBER:
MUNICIPALITY
PROJECT NUMBER:

SHEET TITLE
PROPOSED CONDITION HYDROLOGY MAP

SHEET 1 OF 1

PROJECT
BONSALL HIGH SCHOOL
SAN DIEGO, CA

SITE ADDRESS
BONSALL HIGH SCHOOL
SAN DIEGO, CA 92003

PLOT: M:\PROJECTS\12500\12552\1.00 BONSALL HS\DWGS\EXHIBITS\DRAINAGE\12552U1.00-HYDRO_PROP.DWG Min CC 1/5/2018 11:08 AM

APPENDIX C:

Hydrology Calculations

EXISTING CONDITION RESULTS

Runoff Coefficient Calculation (Existing Condition)

Project: Bonsall High School

Soil Type: **C**

C = 0.90 × (% Impervious) + Cp × (1 - % Impervious) …….. (1)

Cp= 0.3 (per table 3-1, County of San Deigo Hydrology Manual, Soil Class C)

Basin #	Area (Acres)		%imp	*Runoff Coef. (C)	**Equivalent Land Use (from Table 3-1)
	Area (ac)	Imp. Area (Ai)			
A to J	48.96	0.00	0	0.30	Open Space
Total	**48.96**				

Notes:

*The composite runoff coefficient (C) is calculated for the site by using the equation: 0.90 × (% Impervious) + Cp × (1 - % Impervious); where Cp = 0.30 per Table 3-1 of the County of San Diego Hydrology Manual.

**Use these land uses for initial basin analysis only.

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/02/18

EXISTING CONDITION HYDROLOGYANALYSIS
DISCHARGE POINT 1
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 147.000(Ft.)
Highest elevation = 289.000(Ft.)
Lowest elevation = 281.000(Ft.)
Elevation difference = 8.000(Ft.) Slope = 5.442 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 5.44 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 8.19 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(5.442^(1/3)]= 8.19
The initial area total distance of 147.00 (Ft.) entered leaves a
remaining distance of 47.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.46 minutes
for a distance of 47.00 (Ft.) and a slope of 5.44 %
with an elevation difference of 2.56(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)

```
 =    0.464 Minutes
Tt=[(11.9*0.0089^3)/(  2.56)]^.385=  0.46
Total initial area Ti =   8.19 minutes from Figure 3-3 formula plus
  0.46 minutes from the Figure 3-4 formula =   8.65 minutes
Rainfall intensity (I) =      6.105(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff =      1.868(CFS)
Total initial stream area =        1.020(Ac.)
End of computations, total study area =           1.020 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

EXISTING CONDITION HYDROLOGYANALYSIS
DISCHARGE POINT 2
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 102.000 to Point/Station 103.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 204.000(Ft.)
Highest elevation = 295.000(Ft.)
Lowest elevation = 284.640(Ft.)
Elevation difference = 10.360(Ft.) Slope = 5.078 %
Top of Initial Area Slope adjusted by User to 5.000 %
Bottom of Initial Area Slope adjusted by User to 5.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 5.00 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 8.42 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(5.000^(1/3)]= 8.42
The initial area total distance of 204.00 (Ft.) entered leaves a
remaining distance of 104.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.88 minutes
for a distance of 104.00 (Ft.) and a slope of 5.00 %

with an elevation difference of 5.20(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 = 0.884 Minutes
Tt=[(11.9*0.0197^3)/(5.20)]^.385= 0.88
Total initial area Ti = 8.42 minutes from Figure 3-3 formula plus
  0.88 minutes from the Figure 3-4 formula = 9.31 minutes
Rainfall intensity (I) = 5.824(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff = 0.681(CFS)
Total initial stream area = 0.390(Ac.)

++
Process from Point/Station 103.000 to Point/Station 104.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
____
Estimated mean flow rate at midpoint of channel = 1.551(CFS)
Depth of flow = 0.196(Ft.), Average velocity = 4.047(Ft/s)
       ******* Irregular Channel Data ***********

Information entered for subchannel number 1 :
Point number 'X' coordinate 'Y' coordinate
       1   0.00   0.50
       2   5.00   0.00
       3   10.00   0.50
Manning's 'N' friction factor = 0.020

Sub-Channel flow = 1.551(CFS)
  '   ' flow top width = 3.916(Ft.)
  '   ' velocity= 4.047(Ft/s)
  '   ' area = 0.383(Sq.Ft)
  '   ' Froude number = 2.279

Upstream point elevation = 284.640(Ft.)
Downstream point elevation = 268.820(Ft.)
Flow length = 239.000(Ft.)
Travel time = 0.98 min.
Time of concentration = 10.29 min.
Depth of flow = 0.196(Ft.)
Average velocity = 4.047(Ft/s)
Total irregular channel flow = 1.551(CFS)
Irregular channel normal depth above invert elev. = 0.196(Ft.)
Average velocity of channel(s) = 4.047(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) = 5.459(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity = 5.459(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300 CA = 0.429
Subarea runoff = 1.660(CFS) for 1.040(Ac.)
Total runoff = 2.342(CFS) Total area = 1.430(Ac.)
Depth of flow = 0.228(Ft.), Average velocity = 4.486(Ft/s)

++
Process from Point/Station 104.000 to Point/Station 104.000
**** SUBAREA FLOW ADDITION ****
____
Rainfall intensity (I) = 5.459(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.300 given for subarea
Time of concentration = 10.29 min.
Rainfall intensity = 5.459(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area

```
(Q=KCIA) is C = 0.300  CA =      0.738
Subarea runoff =      1.687(CFS) for      1.030(Ac.)
Total runoff =      4.028(CFS)  Total area =       2.460(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      104.000 to Point/Station      105.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      6.474(CFS)
Depth of flow =   0.246(Ft.), Average velocity =   3.220(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.30
        2             10.00              0.00
        3             20.00              0.30
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      6.474(CFS)
  '     '        flow top width =     16.372(Ft.)
  '     '    velocity=    3.220(Ft/s)
  '     '        area =      2.010(Sq.Ft)
  '     '        Froude number =     1.620

Upstream point elevation =   268.820(Ft.)
Downstream point elevation =   256.700(Ft.)
Flow length =   393.500(Ft.)
Travel time  =    2.04 min.
Time of concentration =   12.33 min.
Depth of flow =   0.246(Ft.)
Average velocity =   3.220(Ft/s)
Total irregular channel flow =     6.474(CFS)
Irregular channel normal depth above invert elev. =   0.246(Ft.)
Average velocity of channel(s) =   3.220(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      4.858(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity =      4.858(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300  CA =      1.821
Subarea runoff =      4.819(CFS) for      3.610(Ac.)
Total runoff =      8.847(CFS)  Total area =       6.070(Ac.)
Depth of flow =   0.276(Ft.), Average velocity =   3.482(Ft/s)
End of computations, total study area =          6.070 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/02/18

EXISTING CONDITION HYDROLOGYANALYSIS
DISCHARGE POINT 3
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 106.000 to Point/Station 107.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 204.000(Ft.)
Highest elevation = 292.000(Ft.)
Lowest elevation = 282.000(Ft.)
Elevation difference = 10.000(Ft.) Slope = 4.902 %
Top of Initial Area Slope adjusted by User to 10.000 %
Bottom of Initial Area Slope adjusted by User to 10.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 10.00 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 6.68 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(10.000^(1/3)]= 6.68
The initial area total distance of 204.00 (Ft.) entered leaves a
remaining distance of 104.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.68 minutes
for a distance of 104.00 (Ft.) and a slope of 10.00 %

```
with an elevation difference of  10.40(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 =    0.677 Minutes
Tt=[(11.9*0.0197^3)/( 10.40)]^.385=  0.68
Total initial area Ti =   6.68 minutes from Figure 3-3 formula plus
  0.68 minutes from the Figure 3-4 formula =   7.36 minutes
Rainfall intensity (I) =      6.775(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff =      1.565(CFS)
Total initial stream area =        0.770(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      107.000 to Point/Station      108.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      5.611(CFS)
Depth of flow =   0.246(Ft.), Average velocity =   4.655(Ft/s)
       ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1              0.00              0.50
       2             10.00              0.00
       3             20.00              0.50
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      5.611(CFS)
  '     '        flow top width =      9.820(Ft.)
  '     '    velocity=    4.655(Ft/s)
  '     '        area =      1.205(Sq.Ft)
  '     '        Froude number =     2.341

Upstream point elevation =   282.000(Ft.)
Downstream point elevation =   256.000(Ft.)
Flow length =   403.500(Ft.)
Travel time  =    1.44 min.
Time of concentration =    8.81 min.
Depth of flow =   0.246(Ft.)
Average velocity =   4.655(Ft/s)
Total irregular channel flow =     5.611(CFS)
Irregular channel normal depth above invert elev. =   0.246(Ft.)
Average velocity of channel(s) =   4.655(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      6.035(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity =      6.035(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300  CA =      1.587
Subarea runoff =      8.013(CFS) for      4.520(Ac.)
Total runoff =      9.578(CFS)  Total area =       5.290(Ac.)
Depth of flow =   0.300(Ft.), Average velocity =   5.320(Ft/s)
End of computations, total study area =           5.290 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/02/18

EXISTING CONDITION HYDROLOGYANALYSIS
DISCHARGE POINT 4
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 109.000 to Point/Station 110.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 211.750(Ft.)
Highest elevation = 282.750(Ft.)
Lowest elevation = 262.000(Ft.)
Elevation difference = 20.750(Ft.) Slope = 9.799 %
Top of Initial Area Slope adjusted by User to 10.000 %
Bottom of Initial Area Slope adjusted by User to 10.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 10.00 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 6.68 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(10.000^(1/3)]= 6.68
The initial area total distance of 211.75 (Ft.) entered leaves a
remaining distance of 111.75 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.72 minutes
for a distance of 111.75 (Ft.) and a slope of 10.00 %

with an elevation difference of 11.18(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 =   0.716 Minutes
Tt=[(11.9*0.0212^3)/(11.18)]^.385= 0.72
Total initial area Ti =   6.68 minutes from Figure 3-3 formula plus
  0.72 minutes from the Figure 3-4 formula =   7.40 minutes
Rainfall intensity (I) =   6.752(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff =   5.429(CFS)
Total initial stream area =   2.680(Ac.)
End of computations, total study area =   2.680 (Ac.)

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/02/18

EXISTING CONDITION HYDROLOGYANALYSIS
DISCHARGE POINT 5
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 115.000 to Point/Station 116.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 240.000(Ft.)
Highest elevation = 288.000(Ft.)
Lowest elevation = 280.710(Ft.)
Elevation difference = 7.290(Ft.) Slope = 3.038 %
Top of Initial Area Slope adjusted by User to 3.000 %
Bottom of Initial Area Slope adjusted by User to 3.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 3.00 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 9.98 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(3.000^(1/3)]= 9.98
The initial area total distance of 240.00 (Ft.) entered leaves a
remaining distance of 140.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 1.35 minutes
for a distance of 140.00 (Ft.) and a slope of 3.00 %

with an elevation difference of 4.20(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 = 1.353 Minutes
Tt=[(11.9*0.0265^3)/(4.20)]^.385= 1.35
Total initial area Ti = 9.98 minutes from Figure 3-3 formula plus
  1.35 minutes from the Figure 3-4 formula = 11.34 minutes
Rainfall intensity (I) =   5.128(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff =   0.846(CFS)
Total initial stream area =   0.550(Ac.)

++
Process from Point/Station   116.000 to Point/Station   117.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel =   4.191(CFS)
Depth of flow = 0.242(Ft.), Average velocity = 3.574(Ft/s)
       ******* Irregular Channel Data ***********

Information entered for subchannel number 1 :
Point number   'X' coordinate   'Y' coordinate
       1   0.00   0.50
       2   10.00   0.00
       3   20.00   0.50
Manning's 'N' friction factor = 0.020

Sub-Channel flow =   4.191(CFS)
  '   '   flow top width =   9.685(Ft.)
  '   '   velocity=   3.574(Ft/s)
  '   '   area =   1.173(Sq.Ft)
  '   '   Froude number =   1.810

Upstream point elevation = 280.710(Ft.)
Downstream point elevation = 249.500(Ft.)
Flow length = 806.500(Ft.)
Travel time =   3.76 min.
Time of concentration = 15.10 min.
Depth of flow = 0.242(Ft.)
Average velocity = 3.574(Ft/s)
Total irregular channel flow =   4.191(CFS)
Irregular channel normal depth above invert elev. = 0.242(Ft.)
Average velocity of channel(s) = 3.574(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =   4.263(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity =   4.263(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300 CA =   1.755
Subarea runoff =   6.635(CFS) for   5.300(Ac.)
Total runoff =   7.481(CFS) Total area =   5.850(Ac.)
Depth of flow = 0.301(Ft.), Average velocity = 4.131(Ft/s)

++
Process from Point/Station   117.000 to Point/Station   117.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) =   4.263(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.300 given for subarea
Time of concentration = 15.10 min.
Rainfall intensity =   4.263(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area

```
(Q=KCIA) is C = 0.300  CA =      2.379
Subarea runoff =      2.660(CFS) for      2.080(Ac.)
Total runoff =     10.141(CFS)  Total area =       7.930(Ac.)
End of computations, total study area =           7.930 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/02/18

EXISTING CONDITION HYDROLOGYANALYSIS
DISCHARGE POINT 6
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 120.000 to Point/Station 121.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 246.000(Ft.)
Highest elevation = 285.430(Ft.)
Lowest elevation = 275.300(Ft.)
Elevation difference = 10.130(Ft.) Slope = 4.118 %
Top of Initial Area Slope adjusted by User to 4.000 %
Bottom of Initial Area Slope adjusted by User to 4.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 4.00 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 9.07 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(4.000^(1/3)]= 9.07
The initial area total distance of 246.00 (Ft.) entered leaves a
remaining distance of 146.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 1.25 minutes
for a distance of 146.00 (Ft.) and a slope of 4.00 %

```
with an elevation difference of   5.84(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 =    1.251 Minutes
Tt=[(11.9*0.0277^3)/(  5.84)]^.385=  1.25
Total initial area Ti =   9.07 minutes from Figure 3-3 formula plus
  1.25 minutes from the Figure 3-4 formula =  10.32 minutes
Rainfall intensity (I) =      5.447(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff =      1.258(CFS)
Total initial stream area =        0.770(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      121.000 to Point/Station      122.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      5.858(CFS)
Depth of flow =   0.254(Ft.), Average velocity =   4.556(Ft/s)
       ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1              0.00              0.50
       2             10.00              0.00
       3             20.00              0.50
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      5.858(CFS)
  '     '        flow top width =     10.141(Ft.)
  '     '    velocity=    4.556(Ft/s)
  '     '        area =      1.286(Sq.Ft)
  '     '        Froude number =     2.255

Upstream point elevation =   275.300(Ft.)
Downstream point elevation =   225.650(Ft.)
Flow length =   839.300(Ft.)
Travel time  =    3.07 min.
Time of concentration =   13.39 min.
Depth of flow =   0.254(Ft.)
Average velocity =   4.556(Ft/s)
Total irregular channel flow =     5.858(CFS)
Irregular channel normal depth above invert elev. =   0.254(Ft.)
Average velocity of channel(s) =   4.556(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      4.605(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity =      4.605(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300  CA =      2.256
Subarea runoff =      9.131(CFS) for      6.750(Ac.)
Total runoff =     10.390(CFS)  Total area =       7.520(Ac.)
Depth of flow =   0.314(Ft.), Average velocity =   5.258(Ft/s)
End of computations, total study area =           7.520 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/02/18

EXISTING CONDITION HYDROLOGYANALYSIS
DISCHARGE POINT 7
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 125.000 to Point/Station 126.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 279.100(Ft.)
Highest elevation = 281.000(Ft.)
Lowest elevation = 126.000(Ft.)
Elevation difference = 155.000(Ft.) Slope = 55.536 %
Top of Initial Area Slope adjusted by User to 3.600 %
Bottom of Initial Area Slope adjusted by User to 3.600 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 3.60 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 9.40 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(3.600^(1/3)]= 9.40
The initial area total distance of 279.10 (Ft.) entered leaves a
remaining distance of 179.10 (Ft.)
Using Figure 3-4, the travel time for this distance is 1.53 minutes
for a distance of 179.10 (Ft.) and a slope of 3.60 %

```
with an elevation difference of   6.45(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 =    1.525 Minutes
Tt=[(11.9*0.0339^3)/(  6.45)]^.385=  1.53
Total initial area Ti =   9.40 minutes from Figure 3-3 formula plus
  1.53 minutes from the Figure 3-4 formula =  10.92 minutes
Rainfall intensity (I) =      5.253(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff =      0.552(CFS)
Total initial stream area =        0.350(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      126.000 to Point/Station      127.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      1.388(CFS)
Depth of flow =   0.106(Ft.), Average velocity =   4.100(Ft/s)
       ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1             0.00              0.50
       2            15.00              0.00
       3            30.00              0.50
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =      1.388(CFS)
  '     '        flow top width =      6.373(Ft.)
  '     '    velocity=    4.100(Ft/s)
  '     '        area =      0.339(Sq.Ft)
  '     '        Froude number =     3.135

Upstream point elevation =   271.000(Ft.)
Downstream point elevation =   234.500(Ft.)
Flow length =   239.100(Ft.)
Travel time  =    0.97 min.
Time of concentration =   11.89 min.
Depth of flow =   0.106(Ft.)
Average velocity =   4.100(Ft/s)
Total irregular channel flow =     1.388(CFS)
Irregular channel normal depth above invert elev. =   0.106(Ft.)
Average velocity of channel(s) =   4.100(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      4.972(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity =      4.972(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300  CA =      0.435
Subarea runoff =      1.611(CFS) for      1.100(Ac.)
Total runoff =      2.163(CFS)  Total area =       1.450(Ac.)
Depth of flow =   0.125(Ft.), Average velocity =   4.581(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      127.000 to Point/Station      127.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
Rainfall intensity (I) =      4.972(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.300 given for subarea
Time of concentration =    11.89 min.
Rainfall intensity =      4.972(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
```

```
(Q=KCIA) is C = 0.300  CA =      0.630
Subarea runoff =      0.970(CFS) for      0.650(Ac.)
Total runoff =      3.132(CFS)  Total area =       2.100(Ac.)
End of computations, total study area =           2.100 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

EXISTING CONDITION HYDROLOGYANALYSIS
DISCHARGE POINT 7
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 130.000 to Point/Station 131.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 174.900(Ft.)
Highest elevation = 292.000(Ft.)
Lowest elevation = 282.000(Ft.)
Elevation difference = 10.000(Ft.) Slope = 5.718 %
Top of Initial Area Slope adjusted by User to 5.700 %
Bottom of Initial Area Slope adjusted by User to 5.700 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 5.70 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 8.06 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(5.700^(1/3)]= 8.06
The initial area total distance of 174.90 (Ft.) entered leaves a
remaining distance of 74.90 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.65 minutes
for a distance of 74.90 (Ft.) and a slope of 5.70 %

with an elevation difference of 4.27(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
= 0.653 Minutes
Tt=[(11.9*0.0142^3)/(4.27)]^.385= 0.65
Total initial area Ti = 8.06 minutes from Figure 3-3 formula plus
0.65 minutes from the Figure 3-4 formula = 8.71 minutes
Rainfall intensity (I) = 6.076(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff = 1.203(CFS)
Total initial stream area = 0.660(Ac.)

++
Process from Point/Station 131.000 to Point/Station 132.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****

Estimated mean flow rate at midpoint of channel = 3.558(CFS)
Depth of flow = 0.195(Ft.), Average velocity = 4.664(Ft/s)
******* Irregular Channel Data **********

Information entered for subchannel number 1 :
Point number 'X' coordinate 'Y' coordinate
1 0.00 0.50
2 10.00 0.00
3 20.00 0.50
Manning's 'N' friction factor = 0.020

Sub-Channel flow = 3.558(CFS)
' ' flow top width = 7.811(Ft.)
' ' velocity= 4.664(Ft/s)
' ' area = 0.763(Sq.Ft)
' ' Froude number = 2.631

Upstream point elevation = 282.000(Ft.)
Downstream point elevation = 243.000(Ft.)
Flow length = 444.200(Ft.)
Travel time = 1.59 min.
Time of concentration = 10.30 min.
Depth of flow = 0.195(Ft.)
Average velocity = 4.664(Ft/s)
Total irregular channel flow = 3.558(CFS)
Irregular channel normal depth above invert elev. = 0.195(Ft.)
Average velocity of channel(s) = 4.664(Ft/s)
Adding area flow to channel
Rainfall intensity (I) = 5.455(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity = 5.455(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300 CA = 1.068
Subarea runoff = 4.622(CFS) for 2.900(Ac.)
Total runoff = 5.826(CFS) Total area = 3.560(Ac.)
Depth of flow = 0.235(Ft.), Average velocity = 5.276(Ft/s)

++
Process from Point/Station 132.000 to Point/Station 132.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.455(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.300 given for subarea
Time of concentration = 10.30 min.
Rainfall intensity = 5.455(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area

```
(Q=KCIA) is C = 0.300  CA =      1.758
Subarea runoff =      3.764(CFS) for      2.300(Ac.)
Total runoff =      9.589(CFS)  Total area =       5.860(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      132.000 to Point/Station      133.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
----------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     12.403(CFS)
Depth of flow =   0.392(Ft.), Average velocity =   4.030(Ft/s)
        ******* Irregular Channel Data ***********
----------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              0.50
        2             10.00              0.00
        3             20.00              0.50
Manning's 'N' friction factor =   0.020
----------------------------------------------------------------
Sub-Channel flow  =     12.403(CFS)
  '     '        flow top width =     15.691(Ft.)
  '     '    velocity=    4.030(Ft/s)
  '     '        area =      3.078(Sq.Ft)
  '     '        Froude number =     1.604

Upstream point elevation =   243.000(Ft.)
Downstream point elevation =   234.000(Ft.)
Flow length =   348.000(Ft.)
Travel time  =    1.44 min.
Time of concentration =   11.74 min.
Depth of flow =   0.392(Ft.)
Average velocity =   4.030(Ft/s)
Total irregular channel flow =    12.403(CFS)
Irregular channel normal depth above invert elev. =   0.392(Ft.)
Average velocity of channel(s) =   4.030(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      5.013(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity =      5.013(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300  CA =      3.018
Subarea runoff =      5.541(CFS) for      4.200(Ac.)
Total runoff =     15.131(CFS)  Total area =      10.060(Ac.)
Depth of flow =   0.423(Ft.), Average velocity =   4.236(Ft/s)
End of computations, total study area =          10.060 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/03/18

EXISTING CONDITION HYDROLOGYANALYSIS
DISCHARGE POINT 9
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 160.000 to Point/Station 161.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 301.200(Ft.)
Highest elevation = 275.860(Ft.)
Lowest elevation = 255.000(Ft.)
Elevation difference = 20.860(Ft.) Slope = 6.926 %
Top of Initial Area Slope adjusted by User to 3.600 %
Bottom of Initial Area Slope adjusted by User to 3.600 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 3.60 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 9.40 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(3.600^(1/3)]= 9.40
The initial area total distance of 301.20 (Ft.) entered leaves a
remaining distance of 201.20 (Ft.)
Using Figure 3-4, the travel time for this distance is 1.67 minutes
for a distance of 201.20 (Ft.) and a slope of 3.60 %

with an elevation difference of   7.24(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 =   1.668 Minutes
Tt=[(11.9*0.0381^3)/(7.24)]^.385= 1.67
Total initial area Ti =   9.40 minutes from Figure 3-3 formula plus
  1.67 minutes from the Figure 3-4 formula = 11.06 minutes
Rainfall intensity (I) =   5.209(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff =   2.860(CFS)
Total initial stream area =   1.830(Ac.)
End of computations, total study area =   1.830 (Ac.)

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

EXISTING CONDITION HYDROLOGYANALYSIS
DISCHARGE POINT 10
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 165.000 to Point/Station 166.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 308.000(Ft.)
Highest elevation = 292.960(Ft.)
Lowest elevation = 270.000(Ft.)
Elevation difference = 22.960(Ft.) Slope = 7.455 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 7.45 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 7.37 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(7.450^(1/3)]= 7.37
The initial area total distance of 308.00 (Ft.) entered leaves a
remaining distance of 208.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 1.29 minutes
for a distance of 208.00 (Ft.) and a slope of 7.45 %
with an elevation difference of 15.50(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)

```
 =    1.293 Minutes
Tt=[(11.9*0.0394^3)/( 15.50)]^.385=  1.29
Total initial area Ti =   7.37 minutes from Figure 3-3 formula plus
  1.29 minutes from the Figure 3-4 formula =   8.67 minutes
Rainfall intensity (I) =      6.098(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff =      2.268(CFS)
Total initial stream area =        1.240(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      166.000 to Point/Station      167.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      3.593(CFS)
Depth of flow =   0.201(Ft.), Average velocity =   4.461(Ft/s)
       ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1              0.00              0.50
       2             10.00              0.00
       3             20.00              0.50
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------------
Sub-Channel flow  =      3.594(CFS)
  '     '        flow top width =      8.027(Ft.)
  '     '    velocity=    4.461(Ft/s)
  '     '        area =      0.805(Sq.Ft)
  '     '        Froude number =     2.482

Upstream point elevation =   270.000(Ft.)
Downstream point elevation =   249.630(Ft.)
Flow length =   263.000(Ft.)
Travel time  =    0.98 min.
Time of concentration =    9.65 min.
Depth of flow =   0.201(Ft.)
Average velocity =   4.461(Ft/s)
Total irregular channel flow =     3.593(CFS)
Irregular channel normal depth above invert elev. =   0.201(Ft.)
Average velocity of channel(s) =   4.461(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      5.690(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity =      5.690(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300  CA =      0.849
Subarea runoff =      2.562(CFS) for      1.590(Ac.)
Total runoff =      4.831(CFS)  Total area =       2.830(Ac.)
Depth of flow =   0.224(Ft.), Average velocity =   4.804(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      167.000 to Point/Station      168.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      5.766(CFS)
Depth of flow =   0.309(Ft.), Average velocity =   2.113(Ft/s)
       ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1              0.00              0.35
```

```
        2             10.00              0.00
        3             20.00              0.35
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =      5.766(CFS)
  '     '        flow top width =     17.661(Ft.)
  '     '    velocity=    2.113(Ft/s)
  '     '        area =      2.729(Sq.Ft)
  '     '        Froude number =     0.947

Upstream point elevation =   249.630(Ft.)
Downstream point elevation =   246.800(Ft.)
Flow length =   290.000(Ft.)
Travel time  =    2.29 min.
Time of concentration =   11.94 min.
Depth of flow =   0.309(Ft.)
Average velocity =   2.113(Ft/s)
Total irregular channel flow =     5.766(CFS)
Irregular channel normal depth above invert elev. =   0.309(Ft.)
Average velocity of channel(s) =   2.113(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      4.960(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity =      4.960(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300  CA =      1.338
Subarea runoff =      1.806(CFS) for      1.630(Ac.)
Total runoff =      6.637(CFS)  Total area =       4.460(Ac.)
Depth of flow =   0.326(Ft.), Average velocity =   2.188(Ft/s)
End of computations, total study area =           4.460 (Ac.)
```

PROPOSED CONDITION RESULTS

Runoff Coefficient Calculation (Proposed Condition)

Project: Bonsall High School

Soil Type: **C**

C = 0.90 × (% Impervious) + Cp × (1 - % Impervious) …….. (1)

Cp= 0.3 (per table 3-1, County of San Deigo Hydrology Manual, Soil Class C)

Basin #	Area (Acres)		%imp	*Runoff Coeff. (C)	**Equivalent Land Use (from Table 3-1)
	Area (ac)	Imp. Area (Ai)			
A	1.02	0.00	0	0.30	Open Space
B to H	41.38	10.60	26	0.45	Residential, 2.9 DU/AC or Less (C=0.45)
I	1.83	0.00	0	0.30	Open Space
J	4.73	0.00	0	0.30	Open Space
Total	**48.96**	**10.60**			

Notes:

*The composite runoff coefficient (C) is calculated for the site by using the equation: 0.90 × (% Impervious) + Cp × (1 - % Impervious); where Cp = 0.30 per Table 3-1 of the County of San Diego Hydrology Manual.

**Use these land uses for initial basin analysis only.

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/02/18

PROPOSED CONDITIOIN HYDROLOGY ANALYSIS
DISCHARGE POINT 1
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 100.000 to Point/Station 101.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 147.000(Ft.)
Highest elevation = 289.000(Ft.)
Lowest elevation = 281.000(Ft.)
Elevation difference = 8.000(Ft.) Slope = 5.442 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 5.44 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 8.19 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(5.442^(1/3)]= 8.19
The initial area total distance of 147.00 (Ft.) entered leaves a
remaining distance of 47.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.46 minutes
for a distance of 47.00 (Ft.) and a slope of 5.44 %
with an elevation difference of 2.56(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)

```
 =    0.464 Minutes
Tt=[(11.9*0.0089^3)/(  2.56)]^.385=  0.46
Total initial area Ti =   8.19 minutes from Figure 3-3 formula plus
  0.46 minutes from the Figure 3-4 formula =   8.65 minutes
Rainfall intensity (I) =      6.105(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff =      1.868(CFS)
Total initial stream area =        1.020(Ac.)
End of computations, total study area =           1.020 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

PROPOSED CONDITION HYDROLOGY ANALYSIS
DISCHARGE POINT 2
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 102.000 to Point/Station 103.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[LOW DENSITY RESIDENTIAL]
(2.9 DU/A or Less)
Impervious value, Ai = 0.250
Sub-Area C Value = 0.450
Initial subarea total flow distance = 195.000(Ft.)
Highest elevation = 280.500(Ft.)
Lowest elevation = 278.500(Ft.)
Elevation difference = 2.000(Ft.) Slope = 1.026 %
Top of Initial Area Slope adjusted by User to 1.000 %
Bottom of Initial Area Slope adjusted by User to 1.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 70.00 (Ft)
for the top area slope value of 1.00 %, in a development type of
2.9 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 9.79 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(70.000^.5)/(1.000^(1/3)]= 9.79
The initial area total distance of 195.00 (Ft.) entered leaves a
remaining distance of 125.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 1.89 minutes
for a distance of 125.00 (Ft.) and a slope of 1.00 %

with an elevation difference of 1.25(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
= 1.893 Minutes
Tt=[(11.9*0.0237^3)/(1.25)]^.385= 1.89
Total initial area Ti = 9.79 minutes from Figure 3-3 formula plus
1.89 minutes from the Figure 3-4 formula = 11.68 minutes
Rainfall intensity (I) = 5.030(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff = 1.856(CFS)
Total initial stream area = 0.820(Ac.)

++
Process from Point/Station 103.000 to Point/Station 103.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.030(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration = 11.68 min.
Rainfall intensity = 5.030(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450 CA = 0.702
Subarea runoff = 1.675(CFS) for 0.740(Ac.)
Total runoff = 3.531(CFS) Total area = 1.560(Ac.)

++
Process from Point/Station 103.000 to Point/Station 104.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 275.000(Ft.)
Downstream point/station elevation = 270.000(Ft.)
Pipe length = 146.00(Ft.) Slope = 0.0342 Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 3.531(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 3.531(CFS)
Normal flow depth in pipe = 6.25(In.)
Flow top width inside pipe = 11.99(In.)
Critical Depth = 9.63(In.)
Pipe flow velocity = 8.54(Ft/s)
Travel time through pipe = 0.29 min.
Time of concentration (TC) = 11.97 min.

++
Process from Point/Station 104.000 to Point/Station 104.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 4.952(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration = 11.97 min.
Rainfall intensity = 4.952(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450 CA = 1.242
Subarea runoff = 2.620(CFS) for 1.200(Ac.)
Total runoff = 6.150(CFS) Total area = 2.760(Ac.)

++
Process from Point/Station 104.000 to Point/Station 105.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 270.000(Ft.)

Downstream point/station elevation = 267.000(Ft.)
Pipe length = 138.00(Ft.) Slope = 0.0217 Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 6.150(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 6.150(CFS)
Normal flow depth in pipe = 8.78(In.)
Flow top width inside pipe = 14.78(In.)
Critical Depth = 12.02(In.)
Pipe flow velocity = 8.25(Ft/s)
Travel time through pipe = 0.28 min.
Time of concentration (TC) = 12.25 min.

++
Process from Point/Station 105.000 to Point/Station 105.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 4.879(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration = 12.25 min.
Rainfall intensity = 4.879(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450 CA = 1.859
Subarea runoff = 2.917(CFS) for 1.370(Ac.)
Total runoff = 9.068(CFS) Total area = 4.130(Ac.)

++
Process from Point/Station 105.000 to Point/Station 106.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 267.000(Ft.)
Downstream point/station elevation = 257.000(Ft.)
Pipe length = 86.00(Ft.) Slope = 0.1163 Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 9.068(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 9.068(CFS)
Normal flow depth in pipe = 7.72(In.)
Flow top width inside pipe = 11.49(In.)
Critical depth could not be calculated.
Pipe flow velocity = 16.96(Ft/s)
Travel time through pipe = 0.08 min.
Time of concentration (TC) = 12.33 min.

++
Process from Point/Station 106.000 to Point/Station 106.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 4.857(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration = 12.33 min.
Rainfall intensity = 4.857(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450 CA = 3.604
Subarea runoff = 8.441(CFS) for 3.880(Ac.)
Total runoff = 17.509(CFS) Total area = 8.010(Ac.)

++
Process from Point/Station 106.000 to Point/Station 107.000
**** SUBAREA FLOW ADDITION ****

```
Rainfall intensity (I) =      4.857(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =    12.33 min.
Rainfall intensity =      4.857(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      3.910
Subarea runoff =      1.486(CFS) for      0.680(Ac.)
Total runoff =     18.995(CFS)  Total area =       8.690(Ac.)
End of computations, total study area =           8.690 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

PROPOSED CONDITION HYDROLOGY ANALYSIS
DISCHARGE POINT 3
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 110.000 to Point/Station 111.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[LOW DENSITY RESIDENTIAL]
(2.9 DU/A or Less)
Impervious value, Ai = 0.250
Sub-Area C Value = 0.450
Initial subarea total flow distance = 154.000(Ft.)
Highest elevation = 276.000(Ft.)
Lowest elevation = 256.000(Ft.)
Elevation difference = 20.000(Ft.) Slope = 12.987 %
Top of Initial Area Slope adjusted by User to 12.900 %
Bottom of Initial Area Slope adjusted by User to 12.900 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 12.90 %, in a development type of
2.9 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 4.99 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(100.000^.5)/(12.900^(1/3)]= 4.99
The initial area total distance of 154.00 (Ft.) entered leaves a
remaining distance of 54.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.37 minutes
for a distance of 54.00 (Ft.) and a slope of 12.90 %

with an elevation difference of   6.97(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 =   0.371 Minutes
Tt=[(11.9*0.0102^3)/(6.97)]^.385= 0.37
Total initial area Ti =   4.99 minutes from Figure 3-3 formula plus
  0.37 minutes from the Figure 3-4 formula =   5.36 minutes
Rainfall intensity (I) =   8.314(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff =   3.068(CFS)
Total initial stream area =   0.820(Ac.)
End of computations, total study area =   0.820 (Ac.)

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

PROPOSED CONDITION HYDROLOGY ANALYSIS
DISCHARGE POINT 4
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 112.000 to Point/Station 113.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[LOW DENSITY RESIDENTIAL]
(2.9 DU/A or Less)
Impervious value, Ai = 0.250
Sub-Area C Value = 0.450
Initial subarea total flow distance = 110.000(Ft.)
Highest elevation = 279.000(Ft.)
Lowest elevation = 262.000(Ft.)
Elevation difference = 17.000(Ft.) Slope = 15.455 %
Top of Initial Area Slope adjusted by User to 15.000 %
Bottom of Initial Area Slope adjusted by User to 15.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 15.00 %, in a development type of
2.9 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 4.74 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(100.000^.5)/(15.000^(1/3)]= 4.74
The initial area total distance of 110.00 (Ft.) entered leaves a
remaining distance of 10.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.10 minutes
for a distance of 10.00 (Ft.) and a slope of 15.00 %

with an elevation difference of 1.50(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 = 0.095 Minutes
Tt=[(11.9*0.0019^3)/(1.50)]^.385= 0.10
Total initial area Ti = 4.74 minutes from Figure 3-3 formula plus
  0.10 minutes from the Figure 3-4 formula = 4.84 minutes
Calculated TC of 4.840 minutes is less than 5 minutes,
 resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) = 8.695(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff = 7.825(CFS)
Total initial stream area = 2.000(Ac.)
End of computations, total study area = 2.000 (Ac.)

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

PROPOSED CONDITION HYDROLOGY ANALYSIS
DISCHARGE POINT 5
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 115.000 to Point/Station 116.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[LOW DENSITY RESIDENTIAL]
(2.9 DU/A or Less)
Impervious value, Ai = 0.250
Sub-Area C Value = 0.450
Initial subarea total flow distance = 52.000(Ft.)
Highest elevation = 281.000(Ft.)
Lowest elevation = 280.500(Ft.)
Elevation difference = 0.500(Ft.) Slope = 0.962 %
Top of Initial Area Slope adjusted by User to 1.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 70.00 (Ft)
for the top area slope value of 1.00 %, in a development type of
2.9 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 9.79 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(70.000^.5)/(1.000^(1/3)]= 9.79
Rainfall intensity (I) = 5.637(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff = 0.710(CFS)
Total initial stream area = 0.280(Ac.)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      116.000 to Point/Station      117.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =   277.500(Ft.)
Downstream point/station elevation =   275.120(Ft.)
Pipe length  =   115.00(Ft.) Slope =   0.0207  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     0.710(CFS)
Nearest computed pipe diameter  =      6.00(In.)
Calculated individual pipe flow  =     0.710(CFS)
Normal flow depth in pipe =    4.37(In.)
Flow top width inside pipe =    5.34(In.)
Critical Depth =    5.10(In.)
Pipe flow velocity =      4.64(Ft/s)
Travel time through pipe =    0.41 min.
Time of concentration (TC) =    10.20 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      117.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity (I) =      5.489(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =    10.20 min.
Rainfall intensity =      5.489(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      0.234
Subarea runoff =      0.574(CFS) for      0.240(Ac.)
Total runoff =      1.284(CFS)  Total area =       0.520(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      117.000 to Point/Station      118.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =   275.120(Ft.)
Downstream point/station elevation =   270.020(Ft.)
Pipe length  =   250.00(Ft.) Slope =   0.0204  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.284(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.284(CFS)
Normal flow depth in pipe =    4.73(In.)
Flow top width inside pipe =    8.99(In.)
Critical Depth =    6.26(In.)
Pipe flow velocity =      5.46(Ft/s)
Travel time through pipe =    0.76 min.
Time of concentration (TC) =    10.97 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      118.000 to Point/Station      118.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity (I) =      5.239(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =    10.97 min.
Rainfall intensity =      5.239(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      0.774
Subarea runoff =      2.771(CFS) for      1.200(Ac.)
Total runoff =      4.055(CFS)  Total area =       1.720(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      118.000 to Point/Station      118.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity (I) =      5.239(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =    10.97 min.
Rainfall intensity =      5.239(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      1.035
Subarea runoff =      1.367(CFS) for      0.580(Ac.)
Total runoff =      5.423(CFS)  Total area =       2.300(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      118.000 to Point/Station      119.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =   270.020(Ft.)
Downstream point/station elevation =   267.980(Ft.)
Pipe length  =    98.00(Ft.) Slope =   0.0208  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.423(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     5.423(CFS)
Normal flow depth in pipe =    8.21(In.)
Flow top width inside pipe =   14.93(In.)
Critical Depth =   11.33(In.)
Pipe flow velocity =      7.88(Ft/s)
Travel time through pipe =    0.21 min.
Time of concentration (TC) =    11.17 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      119.000 to Point/Station      119.000
**** SUBAREA FLOW ADDITION ****
----------------------------------------------------------------------------
Rainfall intensity (I) =      5.176(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =    11.17 min.
Rainfall intensity =      5.176(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      1.427
Subarea runoff =      1.961(CFS) for      0.870(Ac.)
Total runoff =      7.384(CFS)  Total area =       3.170(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      119.000 to Point/Station      120.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
----------------------------------------------------------------------------
Upstream point/station elevation =   267.980(Ft.)
Downstream point/station elevation =   265.900(Ft.)
Pipe length  =   102.00(Ft.) Slope =   0.0204  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     7.384(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     7.384(CFS)
Normal flow depth in pipe =   10.15(In.)
Flow top width inside pipe =   14.03(In.)
Critical Depth =   13.00(In.)
Pipe flow velocity =      8.35(Ft/s)
Travel time through pipe =    0.20 min.
```

Time of concentration (TC) = 11.38 min.

++
Process from Point/Station 120.000 to Point/Station 120.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.116(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration = 11.38 min.
Rainfall intensity = 5.116(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450 CA = 1.643
Subarea runoff = 1.020(CFS) for 0.480(Ac.)
Total runoff = 8.404(CFS) Total area = 3.650(Ac.)

++
Process from Point/Station 120.000 to Point/Station 121.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 265.900(Ft.)
Downstream point/station elevation = 260.600(Ft.)
Pipe length = 261.00(Ft.) Slope = 0.0203 Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 8.404(CFS)
Nearest computed pipe diameter = 15.00(In.)
Calculated individual pipe flow = 8.404(CFS)
Normal flow depth in pipe = 11.26(In.)
Flow top width inside pipe = 12.98(In.)
Critical Depth = 13.59(In.)
Pipe flow velocity = 8.50(Ft/s)
Travel time through pipe = 0.51 min.
Time of concentration (TC) = 11.89 min.

++
Process from Point/Station 121.000 to Point/Station 121.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 4.973(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration = 11.89 min.
Rainfall intensity = 4.973(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450 CA = 2.273
Subarea runoff = 2.898(CFS) for 1.400(Ac.)
Total runoff = 11.302(CFS) Total area = 5.050(Ac.)

++
Process from Point/Station 121.000 to Point/Station 122.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 260.600(Ft.)
Downstream point/station elevation = 258.950(Ft.)
Pipe length = 80.00(Ft.) Slope = 0.0206 Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 11.302(CFS)
Nearest computed pipe diameter = 18.00(In.)
Calculated individual pipe flow = 11.302(CFS)
Normal flow depth in pipe = 11.63(In.)
Flow top width inside pipe = 17.22(In.)
Critical Depth = 15.40(In.)
Pipe flow velocity = 9.37(Ft/s)

```
Travel time through pipe =    0.14 min.
Time of concentration (TC) =    12.03 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      122.000 to Point/Station      123.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =     14.182(CFS)
Depth of flow =   0.924(Ft.), Average velocity =  11.062(Ft/s)
       ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1              0.00              1.00
       2              1.50              0.00
       3              3.00              1.00
Manning's 'N' friction factor =   0.013
------------------------------------------------------------------
Sub-Channel flow  =     14.182(CFS)
  '     '        flow top width =      2.773(Ft.)
  '     '    velocity=   11.062(Ft/s)
  '     '        area =      1.282(Sq.Ft)
  '     '        Froude number =     2.867

Upstream point elevation =   258.950(Ft.)
Downstream point elevation =   248.000(Ft.)
Flow length =   327.000(Ft.)
Travel time  =    0.49 min.
Time of concentration =   12.52 min.
Depth of flow =   0.924(Ft.)
Average velocity =  11.062(Ft/s)
Total irregular channel flow =    14.182(CFS)
Irregular channel normal depth above invert elev. =   0.924(Ft.)
Average velocity of channel(s) =  11.062(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      4.809(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Rainfall intensity =      4.809(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      3.532
Subarea runoff =      5.687(CFS) for      2.800(Ac.)
Total runoff =     16.988(CFS)  Total area =       7.850(Ac.)
Depth of flow =   0.989(Ft.), Average velocity =  11.573(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      123.000 to Point/Station      123.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
Rainfall intensity (I) =      4.809(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =    12.52 min.
Rainfall intensity =      4.809(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      3.960
Subarea runoff =      2.056(CFS) for      0.950(Ac.)
Total runoff =     19.044(CFS)  Total area =       8.800(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      123.000 to Point/Station      124.000
**** SUBAREA FLOW ADDITION ****
```

Rainfall intensity (I) = 4.809(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration = 12.52 min.
Rainfall intensity = 4.809(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450 CA = 4.257
Subarea runoff = 1.428(CFS) for 0.660(Ac.)
Total runoff = 20.473(CFS) Total area = 9.460(Ac.)
End of computations, total study area = 9.460 (Ac.)

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

PROPOSED CONDITION HYDROLOGY ANALYSIS
DISCHARGE POINT 6
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 130.000 to Point/Station 132.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[LOW DENSITY RESIDENTIAL]
(2.9 DU/A or Less)
Impervious value, Ai = 0.250
Sub-Area C Value = 0.450
Initial subarea total flow distance = 82.000(Ft.)
Highest elevation = 282.000(Ft.)
Lowest elevation = 281.000(Ft.)
Elevation difference = 1.000(Ft.) Slope = 1.220 %
Top of Initial Area Slope adjusted by User to 1.300 %
Bottom of Initial Area Slope adjusted by User to 1.300 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 70.00 (Ft)
for the top area slope value of 1.30 %, in a development type of
2.9 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 8.97 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(70.000^.5)/(1.300^(1/3)]= 8.97
The initial area total distance of 82.00 (Ft.) entered leaves a
remaining distance of 12.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.28 minutes
for a distance of 12.00 (Ft.) and a slope of 1.30 %

with an elevation difference of 0.16(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
= 0.282 Minutes
Tt=[(11.9*0.0023^3)/(0.16)]^.385= 0.28
Total initial area Ti = 8.97 minutes from Figure 3-3 formula plus
0.28 minutes from the Figure 3-4 formula = 9.25 minutes
Rainfall intensity (I) = 5.847(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff = 1.894(CFS)
Total initial stream area = 0.720(Ac.)

++
Process from Point/Station 132.000 to Point/Station 133.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 275.500(Ft.)
Downstream point/station elevation = 274.670(Ft.)
Pipe length = 165.00(Ft.) Slope = 0.0050 Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 1.894(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 1.894(CFS)
Normal flow depth in pipe = 7.75(In.)
Flow top width inside pipe = 11.48(In.)
Critical Depth = 7.04(In.)
Pipe flow velocity = 3.53(Ft/s)
Travel time through pipe = 0.78 min.
Time of concentration (TC) = 10.03 min.

++
Process from Point/Station 133.000 to Point/Station 133.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 5.549(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration = 10.03 min.
Rainfall intensity = 5.549(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450 CA = 0.522
Subarea runoff = 1.003(CFS) for 0.440(Ac.)
Total runoff = 2.897(CFS) Total area = 1.160(Ac.)

++
Process from Point/Station 133.000 to Point/Station 134.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 274.670(Ft.)
Downstream point/station elevation = 271.300(Ft.)
Pipe length = 166.00(Ft.) Slope = 0.0203 Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 2.897(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 2.897(CFS)
Normal flow depth in pipe = 6.49(In.)
Flow top width inside pipe = 11.96(In.)
Critical Depth = 8.76(In.)
Pipe flow velocity = 6.67(Ft/s)
Travel time through pipe = 0.41 min.
Time of concentration (TC) = 10.44 min.

++

```
Process from Point/Station      134.000 to Point/Station      135.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   271.300(Ft.)
Downstream point/station elevation =   262.180(Ft.)
Pipe length  =   348.00(Ft.) Slope =   0.0262  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.897(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.897(CFS)
Normal flow depth in pipe =    6.02(In.)
Flow top width inside pipe =   12.00(In.)
Critical Depth =    8.76(In.)
Pipe flow velocity =      7.35(Ft/s)
Travel time through pipe =    0.79 min.
Time of concentration (TC) =    11.23 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      135.000 to Point/Station      135.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity (I) =      5.158(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =    11.23 min.
Rainfall intensity =      5.158(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      1.314
Subarea runoff =      3.881(CFS) for      1.760(Ac.)
Total runoff =      6.778(CFS)  Total area =       2.920(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      135.000 to Point/Station      136.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   262.180(Ft.)
Downstream point/station elevation =   257.000(Ft.)
Pipe length  =    52.00(Ft.) Slope =   0.0996  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     6.778(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     6.778(CFS)
Normal flow depth in pipe =    6.71(In.)
Flow top width inside pipe =   11.91(In.)
Critical depth could not be calculated.
Pipe flow velocity =     14.98(Ft/s)
Travel time through pipe =    0.06 min.
Time of concentration (TC) =    11.29 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      136.000 to Point/Station      136.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity (I) =      5.141(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =    11.29 min.
Rainfall intensity =      5.141(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      1.971
Subarea runoff =      3.355(CFS) for      1.460(Ac.)
Total runoff =     10.133(CFS)  Total area =       4.380(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      136.000 to Point/Station      137.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     13.077(CFS)
Depth of flow =   0.784(Ft.), Average velocity =  14.174(Ft/s)
       ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1              0.00              1.00
       2              1.50              0.00
       3              3.00              1.00
Manning's 'N' friction factor =   0.013
------------------------------------------------------------------
Sub-Channel flow  =     13.077(CFS)
  '     '        flow top width =      2.353(Ft.)
  '     '    velocity=   14.174(Ft/s)
  '     '        area =      0.923(Sq.Ft)
  '     '        Froude number =     3.989

Upstream point elevation =   257.000(Ft.)
Downstream point elevation =   234.000(Ft.)
Flow length =   336.000(Ft.)
Travel time  =    0.40 min.
Time of concentration =   11.69 min.
Depth of flow =   0.784(Ft.)
Average velocity =  14.174(Ft/s)
Total irregular channel flow =    13.077(CFS)
Irregular channel normal depth above invert elev. =   0.784(Ft.)
Average velocity of channel(s) =  14.174(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      5.028(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Rainfall intensity =      5.028(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      3.168
Subarea runoff =      5.797(CFS) for      2.660(Ac.)
Total runoff =     15.930(CFS)  Total area =       7.040(Ac.)
Depth of flow =   0.845(Ft.), Average velocity =  14.891(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      137.000 to Point/Station      137.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity (I) =      5.028(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =    11.69 min.
Rainfall intensity =      5.028(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      3.371
Subarea runoff =      1.018(CFS) for      0.450(Ac.)
Total runoff =     16.949(CFS)  Total area =       7.490(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      137.000 to Point/Station      138.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =     18.682(CFS)
Depth of flow =   0.553(Ft.), Average velocity =   6.116(Ft/s)
       ******* Irregular Channel Data ***********
```

```
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1              0.00              1.00
        2             10.00              0.00
        3             20.00              1.00
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     18.683(CFS)
  '     '        flow top width =     11.054(Ft.)
  '     '    velocity=    6.116(Ft/s)
  '     '        area =      3.055(Sq.Ft)
  '     '        Froude number =     2.050

Upstream point elevation =   233.000(Ft.)
Downstream point elevation =   225.650(Ft.)
Flow length =   194.000(Ft.)
Travel time  =    0.53 min.
Time of concentration =   12.21 min.
Depth of flow =   0.553(Ft.)
Average velocity =   6.116(Ft/s)
Total irregular channel flow =    18.682(CFS)
Irregular channel normal depth above invert elev. =   0.553(Ft.)
Average velocity of channel(s) =   6.116(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      4.887(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Rainfall intensity =      4.887(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      4.163
Subarea runoff =      3.394(CFS) for      1.760(Ac.)
Total runoff =     20.342(CFS)  Total area =       9.250(Ac.)
Depth of flow =   0.571(Ft.), Average velocity =   6.247(Ft/s)
End of computations, total study area =           9.250 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

PROPOSED CONDITION HYDROLOGY ANALYSIS
DISCHARGE POINT 7
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 140.000 to Point/Station 141.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[LOW DENSITY RESIDENTIAL]
(2.9 DU/A or Less)
Impervious value, Ai = 0.250
Sub-Area C Value = 0.450
Initial subarea total flow distance = 72.000(Ft.)
Highest elevation = 272.500(Ft.)
Lowest elevation = 271.000(Ft.)
Elevation difference = 1.500(Ft.) Slope = 2.083 %
Top of Initial Area Slope adjusted by User to 2.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 85.00 (Ft)
for the top area slope value of 2.00 %, in a development type of
2.9 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 8.56 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(85.000^.5)/(2.000^(1/3)]= 8.56
Rainfall intensity (I) = 6.146(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff = 0.221(CFS)
Total initial stream area = 0.080(Ac.)

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      141.000 to Point/Station      142.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =      1.596(CFS)
Depth of flow =   0.123(Ft.), Average velocity =   4.217(Ft/s)
       ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1              0.00              0.50
       2              0.12              0.00
       3             15.00              0.30
Manning's 'N' friction factor =   0.015
------------------------------------------------------------------
Sub-Channel flow  =      1.596(CFS)
  '     '        flow top width =      6.142(Ft.)
  '     '    velocity=    4.217(Ft/s)
  '     '        area =      0.378(Sq.Ft)
  '     '        Froude number =     2.994

Upstream point elevation =   271.000(Ft.)
Downstream point elevation =   234.500(Ft.)
Flow length =   480.000(Ft.)
Travel time  =    1.90 min.
Time of concentration =   10.46 min.
Depth of flow =   0.123(Ft.)
Average velocity =   4.217(Ft/s)
Total irregular channel flow =     1.596(CFS)
Irregular channel normal depth above invert elev. =   0.123(Ft.)
Average velocity of channel(s) =   4.217(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      5.402(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Rainfall intensity =      5.402(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      0.540
Subarea runoff =      2.696(CFS) for      1.120(Ac.)
Total runoff =      2.917(CFS)  Total area =       1.200(Ac.)
Depth of flow =   0.155(Ft.), Average velocity =   4.903(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      142.000 to Point/Station      142.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
Rainfall intensity (I) =      5.402(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =    10.46 min.
Rainfall intensity =      5.402(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      0.950
Subarea runoff =      2.212(CFS) for      0.910(Ac.)
Total runoff =      5.129(CFS)  Total area =       2.110(Ac.)
End of computations, total study area =          2.110 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

PROPOSED CONDITION HYDROLOGY ANALYASIS
DISCHARGE POINT 7
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 150.000 to Point/Station 151.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[LOW DENSITY RESIDENTIAL]
(2.9 DU/A or Less)
Impervious value, Ai = 0.250
Sub-Area C Value = 0.450
Initial subarea total flow distance = 195.000(Ft.)
Highest elevation = 287.000(Ft.)
Lowest elevation = 279.000(Ft.)
Elevation difference = 8.000(Ft.) Slope = 4.103 %
Top of Initial Area Slope adjusted by User to 6.000 %
Bottom of Initial Area Slope adjusted by User to 6.000 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 6.00 %, in a development type of
2.9 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 6.44 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(100.000^.5)/(6.000^(1/3)]= 6.44
The initial area total distance of 195.00 (Ft.) entered leaves a
remaining distance of 95.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 0.77 minutes
for a distance of 95.00 (Ft.) and a slope of 6.00 %

with an elevation difference of 5.70(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
= 0.769 Minutes
Tt=[(11.9*0.0180^3)/(5.70)]^.385= 0.77
Total initial area Ti = 6.44 minutes from Figure 3-3 formula plus
0.77 minutes from the Figure 3-4 formula = 7.21 minutes
Rainfall intensity (I) = 6.868(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff = 2.905(CFS)
Total initial stream area = 0.940(Ac.)

++
Process from Point/Station 151.000 to Point/Station 152.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 275.000(Ft.)
Downstream point/station elevation = 270.000(Ft.)
Pipe length = 275.00(Ft.) Slope = 0.0182 Manning's N = 0.013
No. of pipes = 1 Required pipe flow = 2.905(CFS)
Nearest computed pipe diameter = 12.00(In.)
Calculated individual pipe flow = 2.905(CFS)
Normal flow depth in pipe = 6.73(In.)
Flow top width inside pipe = 11.91(In.)
Critical Depth = 8.77(In.)
Pipe flow velocity = 6.41(Ft/s)
Travel time through pipe = 0.72 min.
Time of concentration (TC) = 7.92 min.

++
Process from Point/Station 152.000 to Point/Station 152.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 6.461(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration = 7.92 min.
Rainfall intensity = 6.461(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450 CA = 1.161
Subarea runoff = 4.596(CFS) for 1.640(Ac.)
Total runoff = 7.501(CFS) Total area = 2.580(Ac.)

++
Process from Point/Station 152.000 to Point/Station 152.000
**** SUBAREA FLOW ADDITION ****

Rainfall intensity (I) = 6.461(In/Hr) for a 100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration = 7.92 min.
Rainfall intensity = 6.461(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450 CA = 1.742
Subarea runoff = 3.751(CFS) for 1.290(Ac.)
Total runoff = 11.252(CFS) Total area = 3.870(Ac.)

++
Process from Point/Station 152.000 to Point/Station 153.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 270.000(Ft.)

```
Downstream point/station elevation =   236.000(Ft.)
Pipe length  =   153.00(Ft.) Slope =   0.2222  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    11.252(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =    11.252(CFS)
Normal flow depth in pipe =    7.18(In.)
Flow top width inside pipe =   11.76(In.)
Critical depth could not be calculated.
Pipe flow velocity =     22.92(Ft/s)
Travel time through pipe =    0.11 min.
Time of concentration (TC) =     8.03 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      153.000 to Point/Station      153.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
Rainfall intensity (I) =      6.403(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Time of concentration =     8.03 min.
Rainfall intensity =      6.403(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.450  CA =      3.019
Subarea runoff =      8.082(CFS) for      2.840(Ac.)
Total runoff =     19.334(CFS)  Total area =       6.710(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      154.000 to Point/Station      155.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
________________________________________________________________________
Estimated mean flow rate at midpoint of channel =     21.780(CFS)
Depth of flow =   0.293(Ft.), Average velocity =   3.044(Ft/s)
        ******* Irregular Channel Data ***********
------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
        1             0.00              0.30
        2            25.00              0.00
        3            50.00              0.30
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------
Sub-Channel flow  =     21.780(CFS)
  '     '        flow top width =     48.834(Ft.)
  '     '    velocity=    3.044(Ft/s)
  '     '        area =      7.154(Sq.Ft)
  '     '        Froude number =     1.402

Upstream point elevation =   238.000(Ft.)
Downstream point elevation =   234.000(Ft.)
Flow length =   184.000(Ft.)
Travel time  =    1.01 min.
Time of concentration =    9.04 min.
Depth of flow =   0.293(Ft.)
Average velocity =   3.044(Ft/s)
Total irregular channel flow =    21.780(CFS)
Irregular channel normal depth above invert elev. =   0.293(Ft.)
Average velocity of channel(s) =   3.044(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      5.933(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.450 given for subarea
Rainfall intensity =      5.933(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
```

```
(Q=KCIA) is C = 0.450  CA =      4.072
Subarea runoff =      4.830(CFS) for      2.340(Ac.)
Total runoff =     24.164(CFS)  Total area =       9.050(Ac.)
Depth of flow =   0.304(Ft.), Average velocity =   3.144(Ft/s)
!!Warning: Water is above left or right bank elevations
End of computations, total study area =           9.050 (Ac.)
```

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/03/18

PROPOSED CONDITION HYDROLOGY ANALYSIS
DISCHARGE POINT 9
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 160.000 to Point/Station 161.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 301.200(Ft.)
Highest elevation = 275.860(Ft.)
Lowest elevation = 255.000(Ft.)
Elevation difference = 20.860(Ft.) Slope = 6.926 %
Top of Initial Area Slope adjusted by User to 3.600 %
Bottom of Initial Area Slope adjusted by User to 3.600 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 3.60 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 9.40 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(3.600^(1/3)]= 9.40
The initial area total distance of 301.20 (Ft.) entered leaves a
remaining distance of 201.20 (Ft.)
Using Figure 3-4, the travel time for this distance is 1.67 minutes
for a distance of 201.20 (Ft.) and a slope of 3.60 %

with an elevation difference of 7.24(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 = 1.668 Minutes
Tt=[(11.9*0.0381^3)/(7.24)]^.385= 1.67
Total initial area Ti = 9.40 minutes from Figure 3-3 formula plus
  1.67 minutes from the Figure 3-4 formula = 11.06 minutes
Rainfall intensity (I) = 5.209(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff = 2.860(CFS)
Total initial stream area = 1.830(Ac.)
End of computations, total study area = 1.830 (Ac.)

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2012 Version 7.9

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 01/04/18

PROPOSED CONDITION HYDROLOGY ANALYSIS
DISCHARGE POINT 10
BONSALL HIGH SCHOOL

********* Hydrology Study Control Information **********

Program License Serial Number 6116

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.300
24 hour precipitation(inches) = 6.000
P6/P24 = 55.0%
San Diego hydrology manual 'C' values used

++

Process from Point/Station 165.000 to Point/Station 166.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[UNDISTURBED NATURAL TERRAIN]
(Permanent Open Space)
Impervious value, Ai = 0.000
Sub-Area C Value = 0.300
Initial subarea total flow distance = 308.000(Ft.)
Highest elevation = 292.960(Ft.)
Lowest elevation = 270.000(Ft.)
Elevation difference = 22.960(Ft.) Slope = 7.455 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 7.45 %, in a development type of
Permanent Open Space
In Accordance With Figure 3-3
Initial Area Time of Concentration = 7.37 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.3000)*(100.000^.5)/(7.450^(1/3)]= 7.37
The initial area total distance of 308.00 (Ft.) entered leaves a
remaining distance of 208.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 1.29 minutes
for a distance of 208.00 (Ft.) and a slope of 7.45 %
with an elevation difference of 15.50(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)

```
 =    1.293 Minutes
Tt=[(11.9*0.0394^3)/( 15.50)]^.385=  1.29
Total initial area Ti =   7.37 minutes from Figure 3-3 formula plus
  1.29 minutes from the Figure 3-4 formula =   8.67 minutes
Rainfall intensity (I) =      6.098(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.300
Subarea runoff =      2.762(CFS)
Total initial stream area =        1.510(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      166.000 to Point/Station      167.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      4.079(CFS)
Depth of flow =   0.210(Ft.), Average velocity =   4.605(Ft/s)
       ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1             0.00              0.50
       2            10.00              0.00
       3            20.00              0.50
Manning's 'N' friction factor =   0.020
------------------------------------------------------------------------
Sub-Channel flow  =      4.079(CFS)
  '     '        flow top width =      8.418(Ft.)
  '     '    velocity=    4.605(Ft/s)
  '     '        area =      0.886(Sq.Ft)
  '     '        Froude number =     2.502

Upstream point elevation =   270.000(Ft.)
Downstream point elevation =   249.630(Ft.)
Flow length =   263.000(Ft.)
Travel time  =    0.95 min.
Time of concentration =    9.62 min.
Depth of flow =   0.210(Ft.)
Average velocity =   4.605(Ft/s)
Total irregular channel flow =     4.079(CFS)
Irregular channel normal depth above invert elev. =   0.210(Ft.)
Average velocity of channel(s) =   4.605(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      5.702(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity =      5.702(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300  CA =      0.930
Subarea runoff =      2.540(CFS) for      1.590(Ac.)
Total runoff =      5.302(CFS)  Total area =       3.100(Ac.)
Depth of flow =   0.232(Ft.), Average velocity =   4.917(Ft/s)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      167.000 to Point/Station      168.000
**** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
------------------------------------------------------------------------
Estimated mean flow rate at midpoint of channel =      6.218(CFS)
Depth of flow =   0.318(Ft.), Average velocity =   2.153(Ft/s)
       ******* Irregular Channel Data ***********
------------------------------------------------------------------------
Information entered for subchannel number 1 :
Point number      'X' coordinate     'Y' coordinate
       1             0.00              0.35
```

```
        2             10.00              0.00
        3             20.00              0.35
Manning's 'N' friction factor =   0.020
-----------------------------------------------------------------
Sub-Channel flow  =      6.218(CFS)
  '     '        flow top width =     18.168(Ft.)
  '     '    velocity=    2.153(Ft/s)
  '     '        area =      2.888(Sq.Ft)
  '     '        Froude number =     0.952

Upstream point elevation =   249.630(Ft.)
Downstream point elevation =   246.800(Ft.)
Flow length =   290.000(Ft.)
Travel time  =    2.24 min.
Time of concentration =   11.86 min.
Depth of flow =   0.318(Ft.)
Average velocity =   2.153(Ft/s)
Total irregular channel flow =     6.218(CFS)
Irregular channel normal depth above invert elev. =   0.318(Ft.)
Average velocity of channel(s) =   2.153(Ft/s)
 Adding area flow to channel
Rainfall intensity (I) =      4.980(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.300 given for subarea
Rainfall intensity =      4.980(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.300  CA =      1.419
Subarea runoff =      1.764(CFS) for      1.630(Ac.)
Total runoff =      7.067(CFS)  Total area =       4.730(Ac.)
Depth of flow =   0.334(Ft.), Average velocity =   2.223(Ft/s)
End of computations, total study area =           4.730 (Ac.)
```

DETENTION ANALYSIS -100 YEAR STORM

RATIONAL METHOD HYDROGRAPH PROGRAM
COPYRIGHT 1992, 2001 RICK ENGINEERING COMPANY

RUN DATE 1/4/2018
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 12 MIN.
6 HOUR RAINFALL 3.3 INCHES
BASIN AREA 8.01 ACRES
RUNOFF COEFFICIENT 0.45
PEAK DISCHARGE 17.51 CFS

DETENTION BASIN #1

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 12	DISCHARGE (CFS) = 0.7
TIME (MIN) = 24	DISCHARGE (CFS) = 0.7
TIME (MIN) = 36	DISCHARGE (CFS) = 0.8
TIME (MIN) = 48	DISCHARGE (CFS) = 0.8
TIME (MIN) = 60	DISCHARGE (CFS) = 0.8
TIME (MIN) = 72	DISCHARGE (CFS) = 0.8
TIME (MIN) = 84	DISCHARGE (CFS) = 0.9
TIME (MIN) = 96	DISCHARGE (CFS) = 0.9
TIME (MIN) = 108	DISCHARGE (CFS) = 1
TIME (MIN) = 120	DISCHARGE (CFS) = 1
TIME (MIN) = 132	DISCHARGE (CFS) = 1.1
TIME (MIN) = 144	DISCHARGE (CFS) = 1.2
TIME (MIN) = 156	DISCHARGE (CFS) = 1.3
TIME (MIN) = 168	DISCHARGE (CFS) = 1.4
TIME (MIN) = 180	DISCHARGE (CFS) = 1.6
TIME (MIN) = 192	DISCHARGE (CFS) = 1.7
TIME (MIN) = 204	DISCHARGE (CFS) = 2.1
TIME (MIN) = 216	DISCHARGE (CFS) = 2.4
TIME (MIN) = 228	DISCHARGE (CFS) = 3.5
TIME (MIN) = 240	DISCHARGE (CFS) = 5.3
TIME (MIN) = 252	DISCHARGE (CFS) = 17.51
TIME (MIN) = 264	DISCHARGE (CFS) = 2.8
TIME (MIN) = 276	DISCHARGE (CFS) = 1.9
TIME (MIN) = 288	DISCHARGE (CFS) = 1.5
TIME (MIN) = 300	DISCHARGE (CFS) = 1.2
TIME (MIN) = 312	DISCHARGE (CFS) = 1.1
TIME (MIN) = 324	DISCHARGE (CFS) = 1
TIME (MIN) = 336	DISCHARGE (CFS) = 0.9
TIME (MIN) = 348	DISCHARGE (CFS) = 0.8
TIME (MIN) = 360	DISCHARGE (CFS) = 0.7
TIME (MIN) = 372	DISCHARGE (CFS) = 0

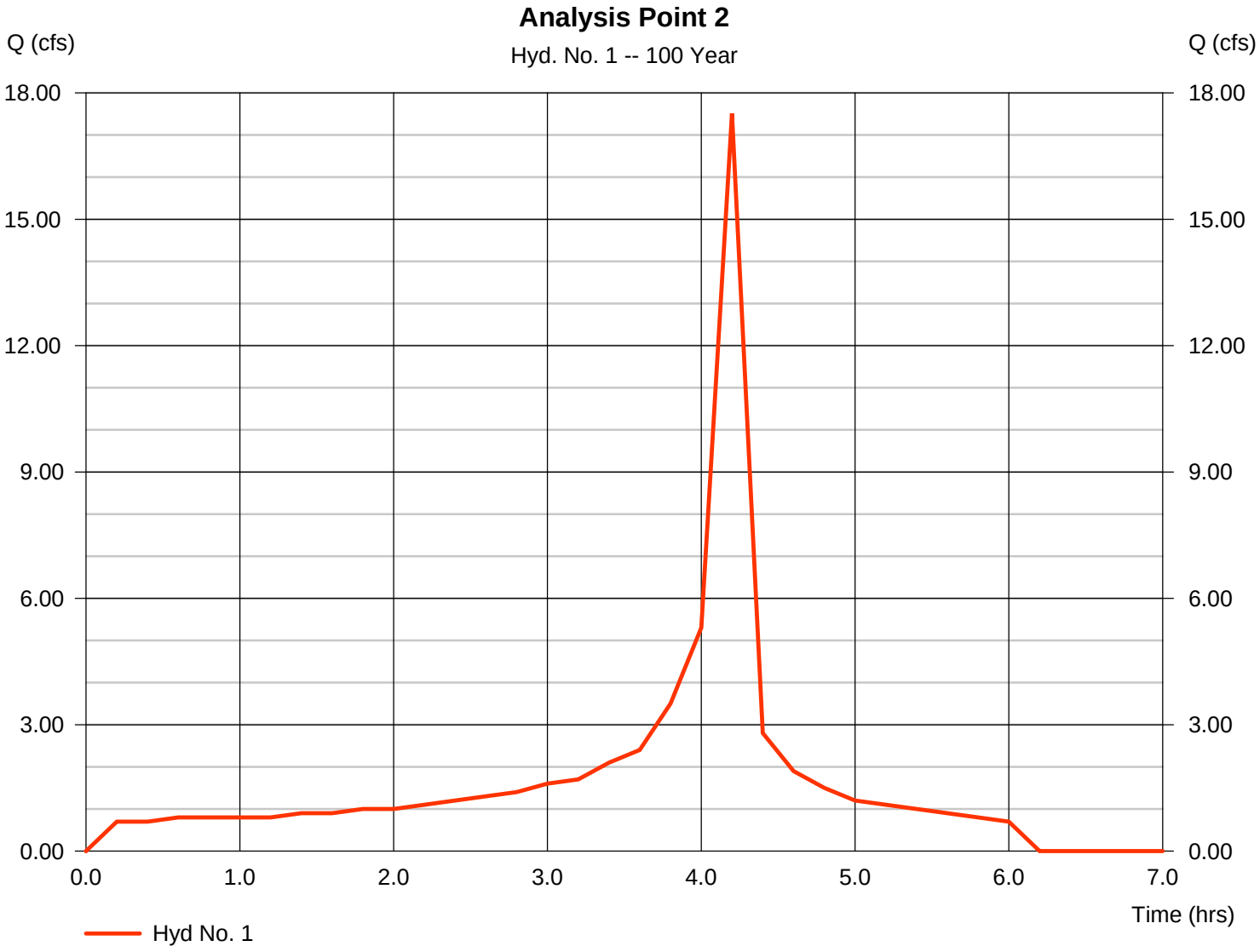
Watershed Model Schematic

Hydrograph Report

Hyd. No. 1

Analysis Point 2

Hydrograph type	= Manual	Peak discharge	= 17.51 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.20 hrs
Time interval	= 12 min	Hyd. volume	= 42,934 cuft



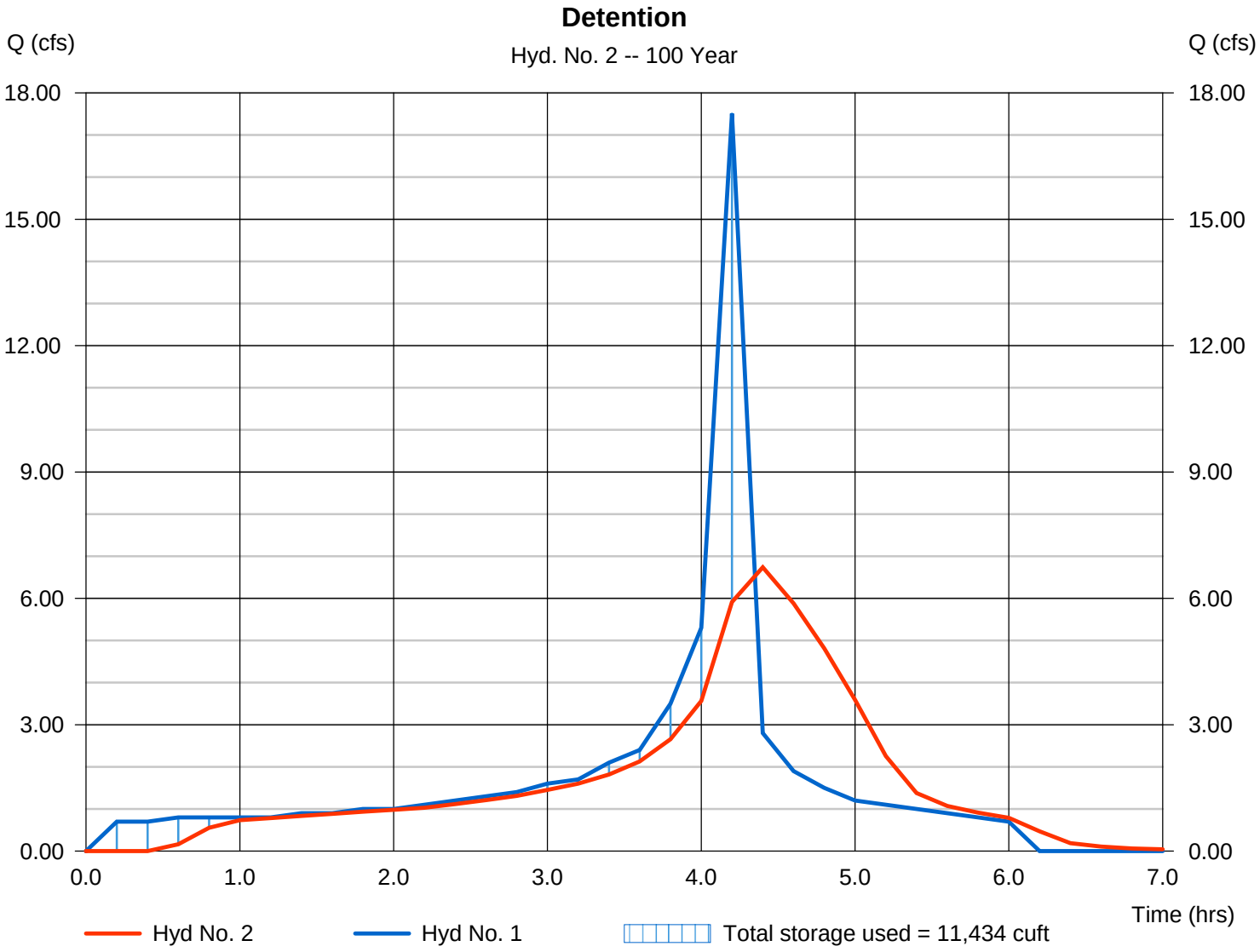
Hydrograph Report

Hyd. No. 2

Detention

Hydrograph type	=	Reservoir	Peak discharge	=	6.738 cfs
Storm frequency	=	100 yrs	Time to peak	=	4.40 hrs
Time interval	=	12 min	Hyd. volume	=	42,032 cuft
Inflow hyd. No.	=	1 - Analysis Point 2	Max. Elevation	=	104.50 ft
Reservoir name	=	Detention #1	Max. Storage	=	11,434 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - Detention #1

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 100.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	1,537	0	0
1.00	101.00	2,053	1,795	1,795
2.00	102.00	2,626	2,340	4,135
3.00	103.00	3,256	2,941	7,076
4.00	104.00	3,942	3,599	10,675
5.00	105.00	4,684	4,313	14,988
6.00	106.00	5,484	5,084	20,072

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	12.00	Inactive	Inactive
Span (in)	= 18.00	12.00	5.80	24.00
No. Barrels	= 1	1	1	1
Invert El. (ft)	= 95.00	100.50	305.45	48.25
Length (ft)	= 10.00	0.00	0.00	2.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.71	Inactive	Inactive	Inactive
Crest El. (ft)	= 105.00	304.90	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
1.00	1,795	101.00	17.54 ic	0.95 ic	0.00	0.00	0.00	0.00	---	---	---	---	0.945
2.00	4,135	102.00	17.54 ic	3.78 ic	0.00	0.00	0.00	0.00	---	---	---	---	3.781
3.00	7,076	103.00	17.54 ic	5.35 ic	0.00	0.00	0.00	0.00	---	---	---	---	5.347
4.00	10,675	104.00	17.54 ic	6.55 ic	0.00	0.00	0.00	0.00	---	---	---	---	6.549
5.00	14,988	105.00	17.54 ic	7.56 ic	0.00	0.00	0.00	0.00	---	---	---	---	7.562
6.00	20,072	106.00	17.54 ic	8.46 ic	0.00	0.00	7.45 ic	0.00	---	---	---	---	15.91

RATIONAL METHOD HYDROGRAPH PROGRAM
COPYRIGHT 1992, 2001 RICK ENGINEERING COMPANY

DETENTION BASIN #2

RUN DATE 1/4/2018
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 12 MIN.
6 HOUR RAINFALL 3.3 INCHES
BASIN AREA 8.8 ACRES
RUNOFF COEFFICIENT 0.45
PEAK DISCHARGE 19.05 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 12	DISCHARGE (CFS) = 0.8
TIME (MIN) = 24	DISCHARGE (CFS) = 0.8
TIME (MIN) = 36	DISCHARGE (CFS) = 0.8
TIME (MIN) = 48	DISCHARGE (CFS) = 0.9
TIME (MIN) = 60	DISCHARGE (CFS) = 0.9
TIME (MIN) = 72	DISCHARGE (CFS) = 0.9
TIME (MIN) = 84	DISCHARGE (CFS) = 1
TIME (MIN) = 96	DISCHARGE (CFS) = 1
TIME (MIN) = 108	DISCHARGE (CFS) = 1.1
TIME (MIN) = 120	DISCHARGE (CFS) = 1.1
TIME (MIN) = 132	DISCHARGE (CFS) = 1.2
TIME (MIN) = 144	DISCHARGE (CFS) = 1.3
TIME (MIN) = 156	DISCHARGE (CFS) = 1.4
TIME (MIN) = 168	DISCHARGE (CFS) = 1.5
TIME (MIN) = 180	DISCHARGE (CFS) = 1.7
TIME (MIN) = 192	DISCHARGE (CFS) = 1.9
TIME (MIN) = 204	DISCHARGE (CFS) = 2.3
TIME (MIN) = 216	DISCHARGE (CFS) = 2.6
TIME (MIN) = 228	DISCHARGE (CFS) = 3.9
TIME (MIN) = 240	DISCHARGE (CFS) = 6
TIME (MIN) = 252	DISCHARGE (CFS) = 19.05
TIME (MIN) = 264	DISCHARGE (CFS) = 3.1
TIME (MIN) = 276	DISCHARGE (CFS) = 2.1
TIME (MIN) = 288	DISCHARGE (CFS) = 1.6
TIME (MIN) = 300	DISCHARGE (CFS) = 1.4
TIME (MIN) = 312	DISCHARGE (CFS) = 1.2
TIME (MIN) = 324	DISCHARGE (CFS) = 1.1
TIME (MIN) = 336	DISCHARGE (CFS) = 1
TIME (MIN) = 348	DISCHARGE (CFS) = 0.9
TIME (MIN) = 360	DISCHARGE (CFS) = 0.8
TIME (MIN) = 372	DISCHARGE (CFS) = 0

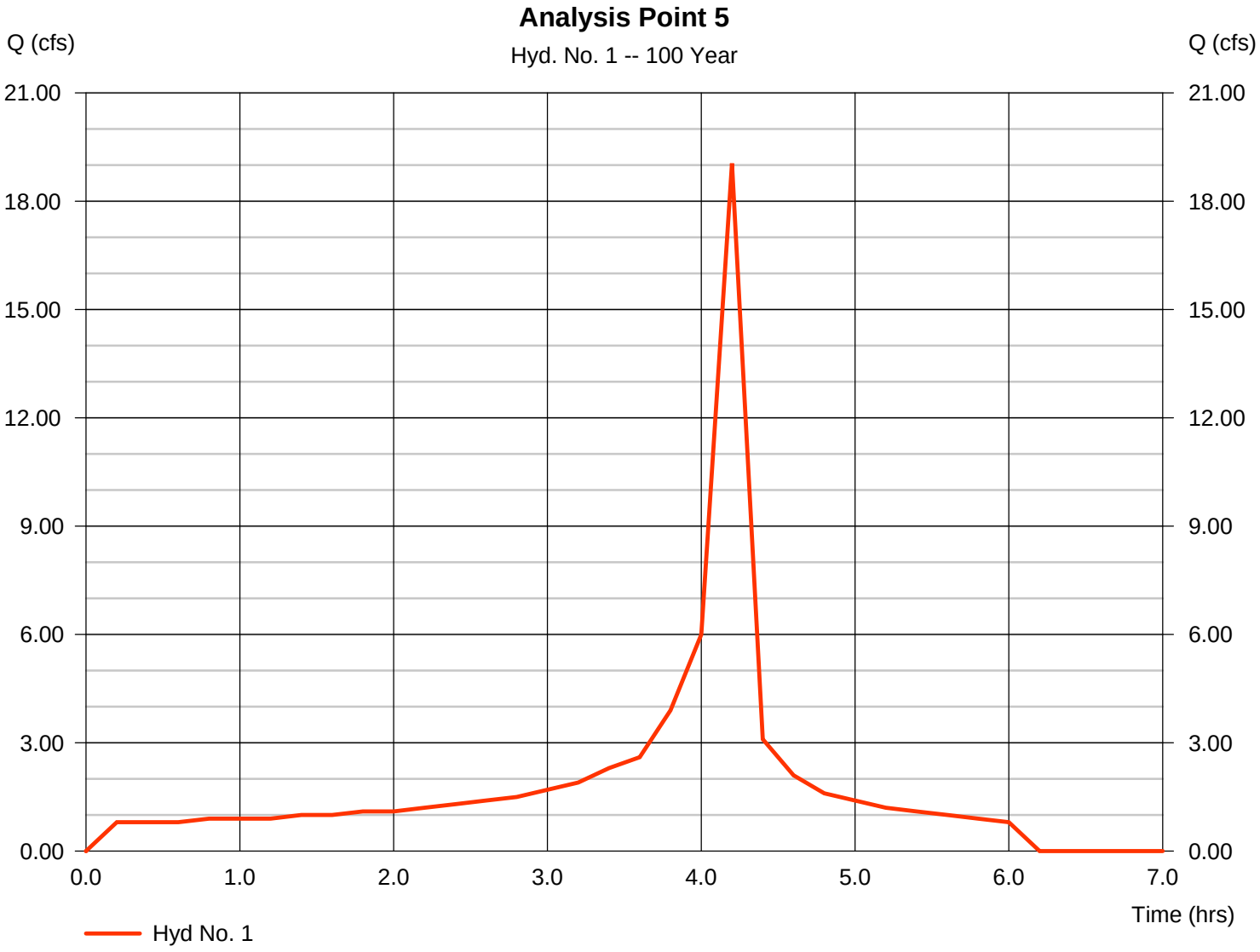
Watershed Model Schematic

Hydrograph Report

Hyd. No. 1

Analysis Point 5

Hydrograph type	= Manual	Peak discharge	= 19.05 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.20 hrs
Time interval	= 12 min	Hyd. volume	= 47,210 cuft



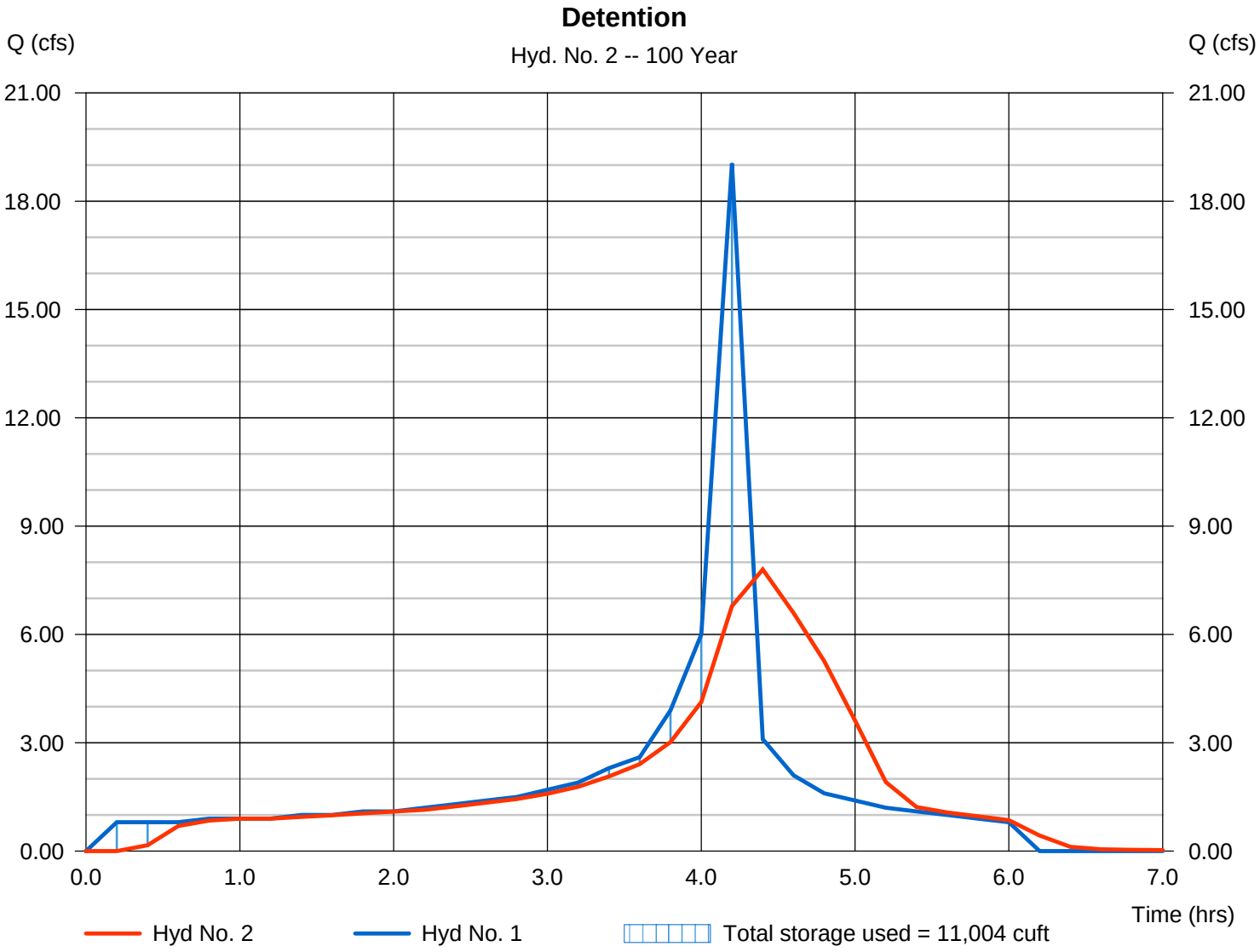
Hydrograph Report

Hyd. No. 2

Detention

Hydrograph type	=	Reservoir	Peak discharge	=	7.802 cfs
Storm frequency	=	100 yrs	Time to peak	=	4.40 hrs
Time interval	=	12 min	Hyd. volume	=	46,622 cuft
Inflow hyd. No.	=	1 - Analysis Point 5	Max. Elevation	=	105.47 ft
Reservoir name	=	Detention #2	Max. Storage	=	11,004 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - Detention #2

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 100.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	964	0	0
1.00	101.00	1,378	1,171	1,171
2.00	102.00	1,849	1,614	2,785
3.00	103.00	2,376	2,113	4,897
4.00	104.00	2,959	2,668	7,565
5.00	105.00	3,600	3,280	10,844
6.00	106.00	4,296	3,948	14,792

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	12.00	Inactive	Inactive
Span (in)	= 18.00	12.00	5.80	24.00
No. Barrels	= 1	1	1	1
Invert El. (ft)	= 95.00	100.50	305.45	48.25
Length (ft)	= 10.00	0.00	0.00	2.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.71	Inactive	Inactive	Inactive
Crest El. (ft)	= 105.00	304.90	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
1.00	1,171	101.00	17.54 ic	0.95 ic	0.00	0.00	0.00	0.00	---	---	---	---	0.945
2.00	2,785	102.00	17.54 ic	3.78 ic	0.00	0.00	0.00	0.00	---	---	---	---	3.781
3.00	4,897	103.00	17.54 ic	5.35 ic	0.00	0.00	0.00	0.00	---	---	---	---	5.347
4.00	7,565	104.00	17.54 ic	6.55 ic	0.00	0.00	0.00	0.00	---	---	---	---	6.549
5.00	10,844	105.00	17.54 ic	7.56 ic	0.00	0.00	0.00	0.00	---	---	---	---	7.562
6.00	14,792	106.00	17.54 ic	8.46 ic	0.00	0.00	7.45 ic	0.00	---	---	---	---	15.91

RATIONAL METHOD HYDROGRAPH PROGRAM
COPYRIGHT 1992, 2001 RICK ENGINEERING COMPANY

RUN DATE 1/4/2018
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 12 MIN.
6 HOUR RAINFALL 3.3 INCHES
BASIN AREA 7.49 ACRES
RUNOFF COEFFICIENT 0.45
PEAK DISCHARGE 16.95 CFS

DETENTION BASIN #3

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 12	DISCHARGE (CFS) = 0.7
TIME (MIN) = 24	DISCHARGE (CFS) = 0.7
TIME (MIN) = 36	DISCHARGE (CFS) = 0.7
TIME (MIN) = 48	DISCHARGE (CFS) = 0.7
TIME (MIN) = 60	DISCHARGE (CFS) = 0.8
TIME (MIN) = 72	DISCHARGE (CFS) = 0.8
TIME (MIN) = 84	DISCHARGE (CFS) = 0.8
TIME (MIN) = 96	DISCHARGE (CFS) = 0.9
TIME (MIN) = 108	DISCHARGE (CFS) = 0.9
TIME (MIN) = 120	DISCHARGE (CFS) = 1
TIME (MIN) = 132	DISCHARGE (CFS) = 1.1
TIME (MIN) = 144	DISCHARGE (CFS) = 1.1
TIME (MIN) = 156	DISCHARGE (CFS) = 1.2
TIME (MIN) = 168	DISCHARGE (CFS) = 1.3
TIME (MIN) = 180	DISCHARGE (CFS) = 1.5
TIME (MIN) = 192	DISCHARGE (CFS) = 1.6
TIME (MIN) = 204	DISCHARGE (CFS) = 2
TIME (MIN) = 216	DISCHARGE (CFS) = 2.2
TIME (MIN) = 228	DISCHARGE (CFS) = 3.3
TIME (MIN) = 240	DISCHARGE (CFS) = 4.4
TIME (MIN) = 252	DISCHARGE (CFS) = 16.95
TIME (MIN) = 264	DISCHARGE (CFS) = 2.6
TIME (MIN) = 276	DISCHARGE (CFS) = 1.8
TIME (MIN) = 288	DISCHARGE (CFS) = 1.4
TIME (MIN) = 300	DISCHARGE (CFS) = 1.2
TIME (MIN) = 312	DISCHARGE (CFS) = 1
TIME (MIN) = 324	DISCHARGE (CFS) = 0.9
TIME (MIN) = 336	DISCHARGE (CFS) = 0.8
TIME (MIN) = 348	DISCHARGE (CFS) = 0.8
TIME (MIN) = 360	DISCHARGE (CFS) = 0.7
TIME (MIN) = 372	DISCHARGE (CFS) = 0

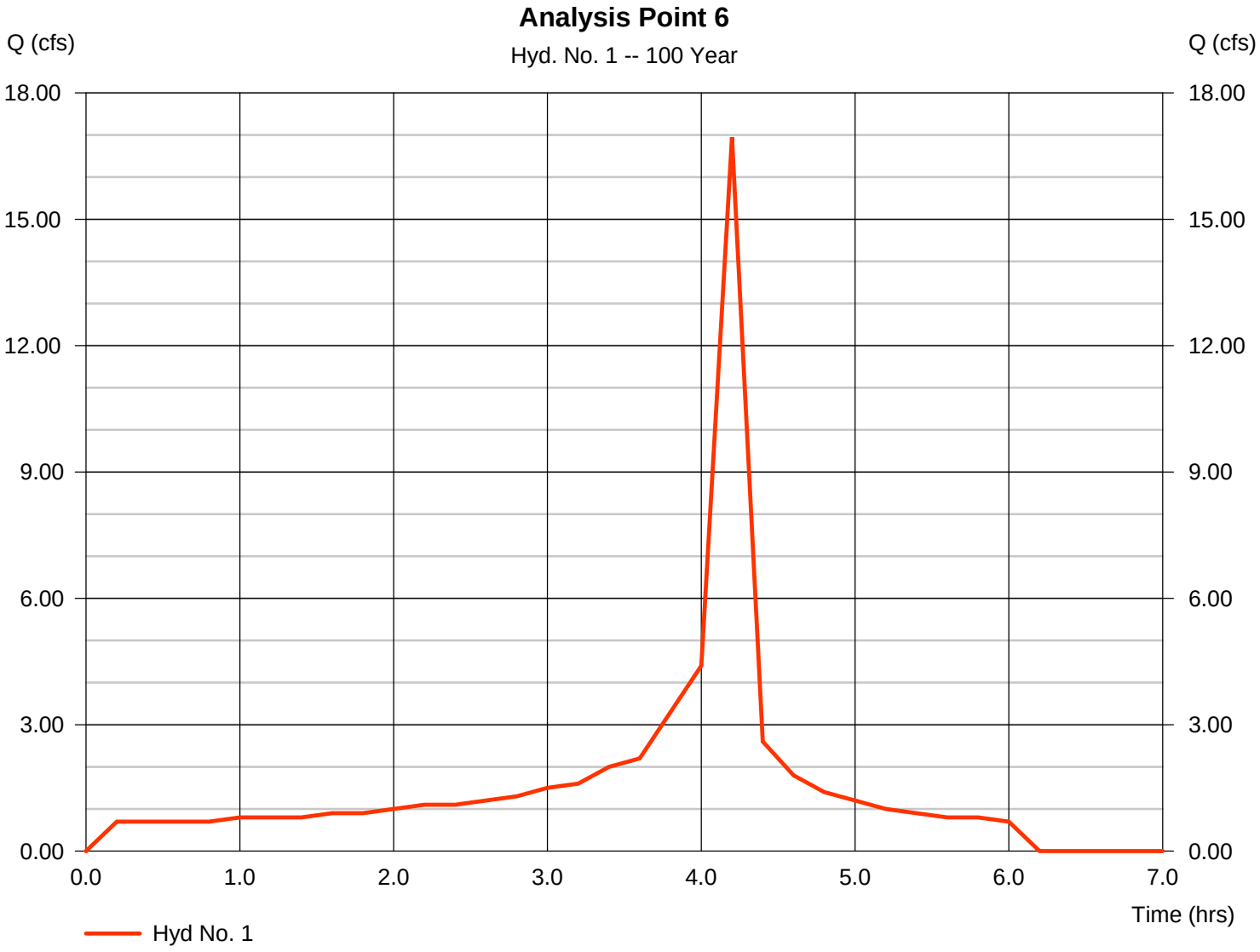
Watershed Model Schematic

Hydrograph Report

Hyd. No. 1

Analysis Point 6

Hydrograph type	= Manual	Peak discharge	= 16.95 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.20 hrs
Time interval	= 12 min	Hyd. volume	= 40,212 cuft



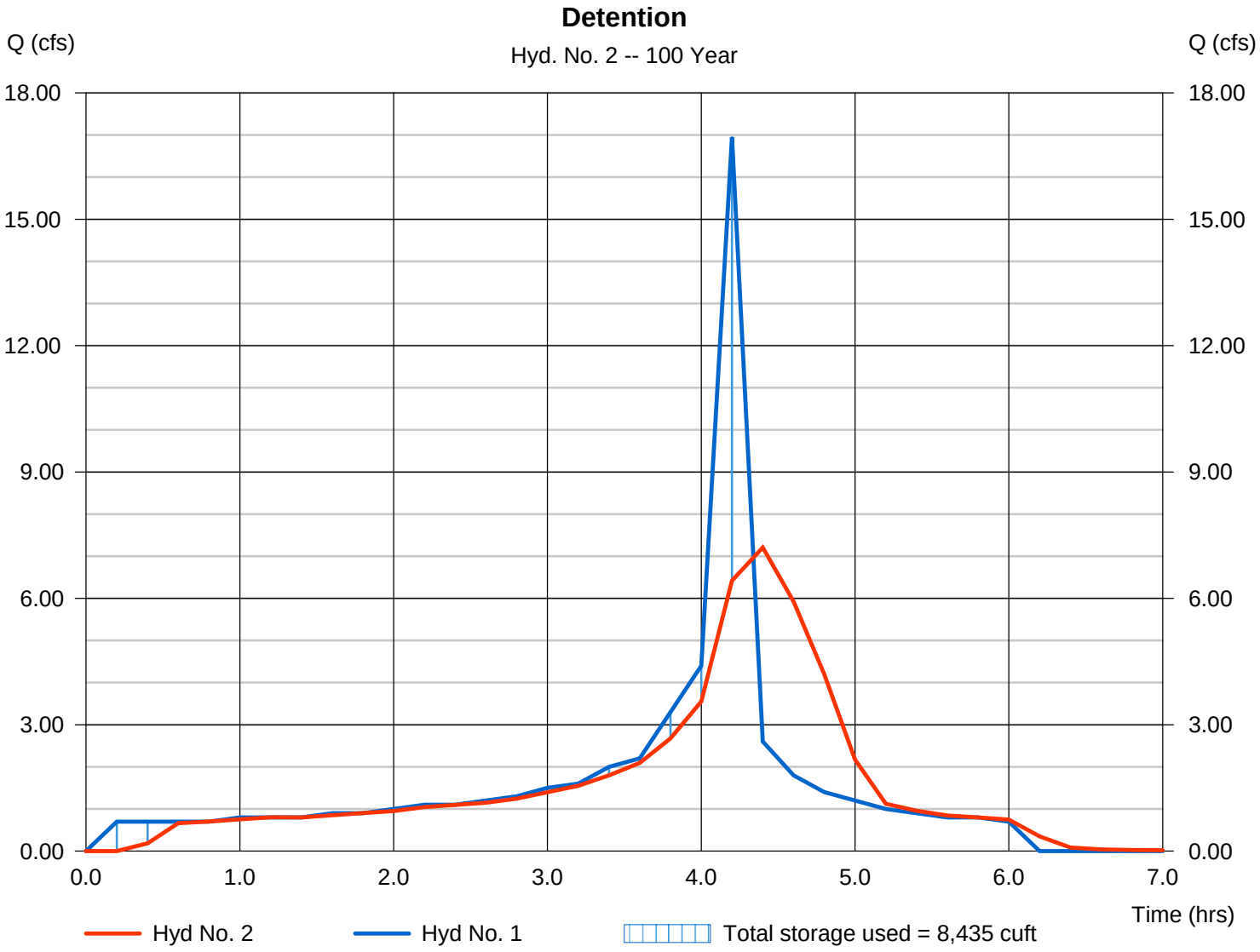
Hydrograph Report

Hyd. No. 2

Detention

Hydrograph type	=	Reservoir	Peak discharge	=	7.206 cfs
Storm frequency	=	100 yrs	Time to peak	=	4.40 hrs
Time interval	=	12 min	Hyd. volume	=	39,719 cuft
Inflow hyd. No.	=	1 - Analysis Point 6	Max. Elevation	=	105.16 ft
Reservoir name	=	Detention #3	Max. Storage	=	8,435 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - Detention #3

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 100.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	794	0	0
1.00	101.00	1,170	982	982
2.00	102.00	1,602	1,386	2,368
3.00	103.00	2,091	1,847	4,215
4.00	104.00	2,637	2,364	6,579
5.00	105.00	3,239	2,938	9,517
6.00	106.00	3,898	3,569	13,085

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	12.00	Inactive	Inactive
Span (in)	= 18.00	12.00	5.80	24.00
No. Barrels	= 1	1	1	1
Invert El. (ft)	= 95.00	100.50	305.45	48.25
Length (ft)	= 10.00	0.00	0.00	2.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.71	Inactive	Inactive	Inactive
Crest El. (ft)	= 105.00	304.90	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
1.00	982	101.00	17.54 ic	0.95 ic	0.00	0.00	0.00	0.00	---	---	---	---	0.945
2.00	2,368	102.00	17.54 ic	3.78 ic	0.00	0.00	0.00	0.00	---	---	---	---	3.781
3.00	4,215	103.00	17.54 ic	5.35 ic	0.00	0.00	0.00	0.00	---	---	---	---	5.347
4.00	6,579	104.00	17.54 ic	6.55 ic	0.00	0.00	0.00	0.00	---	---	---	---	6.549
5.00	9,517	105.00	17.54 ic	7.56 ic	0.00	0.00	0.00	0.00	---	---	---	---	7.562
6.00	13,085	106.00	17.54 ic	8.46 ic	0.00	0.00	7.45 ic	0.00	---	---	---	---	15.91

RATIONAL METHOD HYDROGRAPH PROGRAM
COPYRIGHT 1992, 2001 RICK ENGINEERING COMPANY

RUN DATE 1/4/2018
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 8 MIN.
6 HOUR RAINFALL 3.3 INCHES
BASIN AREA 6.71 ACRES
RUNOFF COEFFICIENT 0.45
PEAK DISCHARGE 19.34 CFS

DETENTION BASIN #4

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 8	DISCHARGE (CFS) = 0.6
TIME (MIN) = 16	DISCHARGE (CFS) = 0.6
TIME (MIN) = 24	DISCHARGE (CFS) = 0.6
TIME (MIN) = 32	DISCHARGE (CFS) = 0.6
TIME (MIN) = 40	DISCHARGE (CFS) = 0.7
TIME (MIN) = 48	DISCHARGE (CFS) = 0.7
TIME (MIN) = 56	DISCHARGE (CFS) = 0.7
TIME (MIN) = 64	DISCHARGE (CFS) = 0.7
TIME (MIN) = 72	DISCHARGE (CFS) = 0.7
TIME (MIN) = 80	DISCHARGE (CFS) = 0.7
TIME (MIN) = 88	DISCHARGE (CFS) = 0.8
TIME (MIN) = 96	DISCHARGE (CFS) = 0.8
TIME (MIN) = 104	DISCHARGE (CFS) = 0.8
TIME (MIN) = 112	DISCHARGE (CFS) = 0.9
TIME (MIN) = 120	DISCHARGE (CFS) = 0.9
TIME (MIN) = 128	DISCHARGE (CFS) = 0.9
TIME (MIN) = 136	DISCHARGE (CFS) = 1
TIME (MIN) = 144	DISCHARGE (CFS) = 1
TIME (MIN) = 152	DISCHARGE (CFS) = 1.1
TIME (MIN) = 160	DISCHARGE (CFS) = 1.1
TIME (MIN) = 168	DISCHARGE (CFS) = 1.2
TIME (MIN) = 176	DISCHARGE (CFS) = 1.3
TIME (MIN) = 184	DISCHARGE (CFS) = 1.4
TIME (MIN) = 192	DISCHARGE (CFS) = 1.5
TIME (MIN) = 200	DISCHARGE (CFS) = 1.7
TIME (MIN) = 208	DISCHARGE (CFS) = 1.9
TIME (MIN) = 216	DISCHARGE (CFS) = 2.3
TIME (MIN) = 224	DISCHARGE (CFS) = 2.6
TIME (MIN) = 232	DISCHARGE (CFS) = 3.8
TIME (MIN) = 240	DISCHARGE (CFS) = 5.5
TIME (MIN) = 248	DISCHARGE (CFS) = 19.34
TIME (MIN) = 256	DISCHARGE (CFS) = 3.1
TIME (MIN) = 264	DISCHARGE (CFS) = 2.1
TIME (MIN) = 272	DISCHARGE (CFS) = 1.6
TIME (MIN) = 280	DISCHARGE (CFS) = 1.4
TIME (MIN) = 288	DISCHARGE (CFS) = 1.2
TIME (MIN) = 296	DISCHARGE (CFS) = 1
TIME (MIN) = 304	DISCHARGE (CFS) = 1
TIME (MIN) = 312	DISCHARGE (CFS) = 0.9
TIME (MIN) = 320	DISCHARGE (CFS) = 0.8
TIME (MIN) = 328	DISCHARGE (CFS) = 0.8
TIME (MIN) = 336	DISCHARGE (CFS) = 0.7
TIME (MIN) = 344	DISCHARGE (CFS) = 0.7
TIME (MIN) = 352	DISCHARGE (CFS) = 0.6
TIME (MIN) = 360	DISCHARGE (CFS) = 0.6
TIME (MIN) = 368	DISCHARGE (CFS) = 0

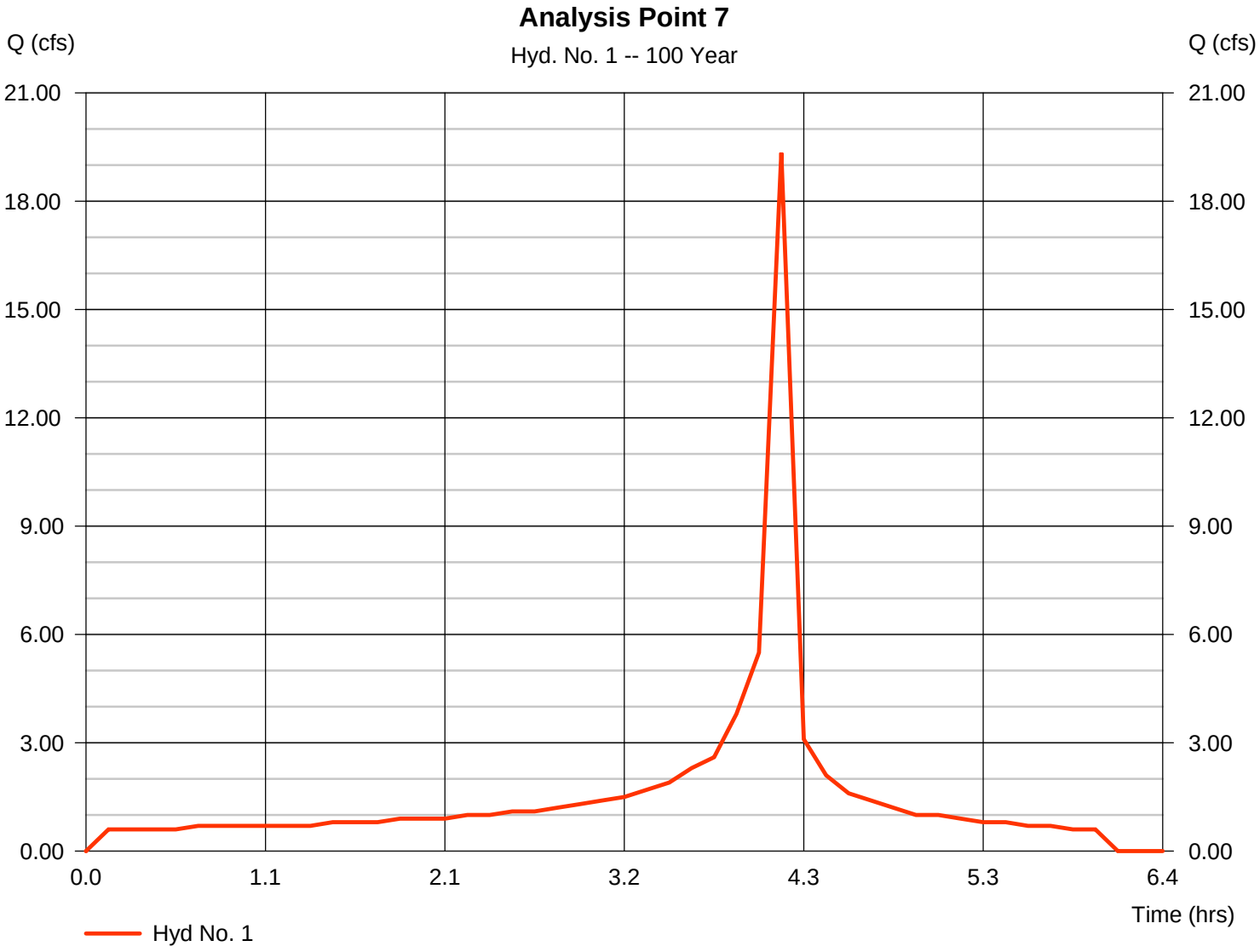
Watershed Model Schematic

Hydrograph Report

Hyd. No. 1

Analysis Point 7

Hydrograph type	= Manual	Peak discharge	= 19.34 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.13 hrs
Time interval	= 8 min	Hyd. volume	= 35,971 cuft



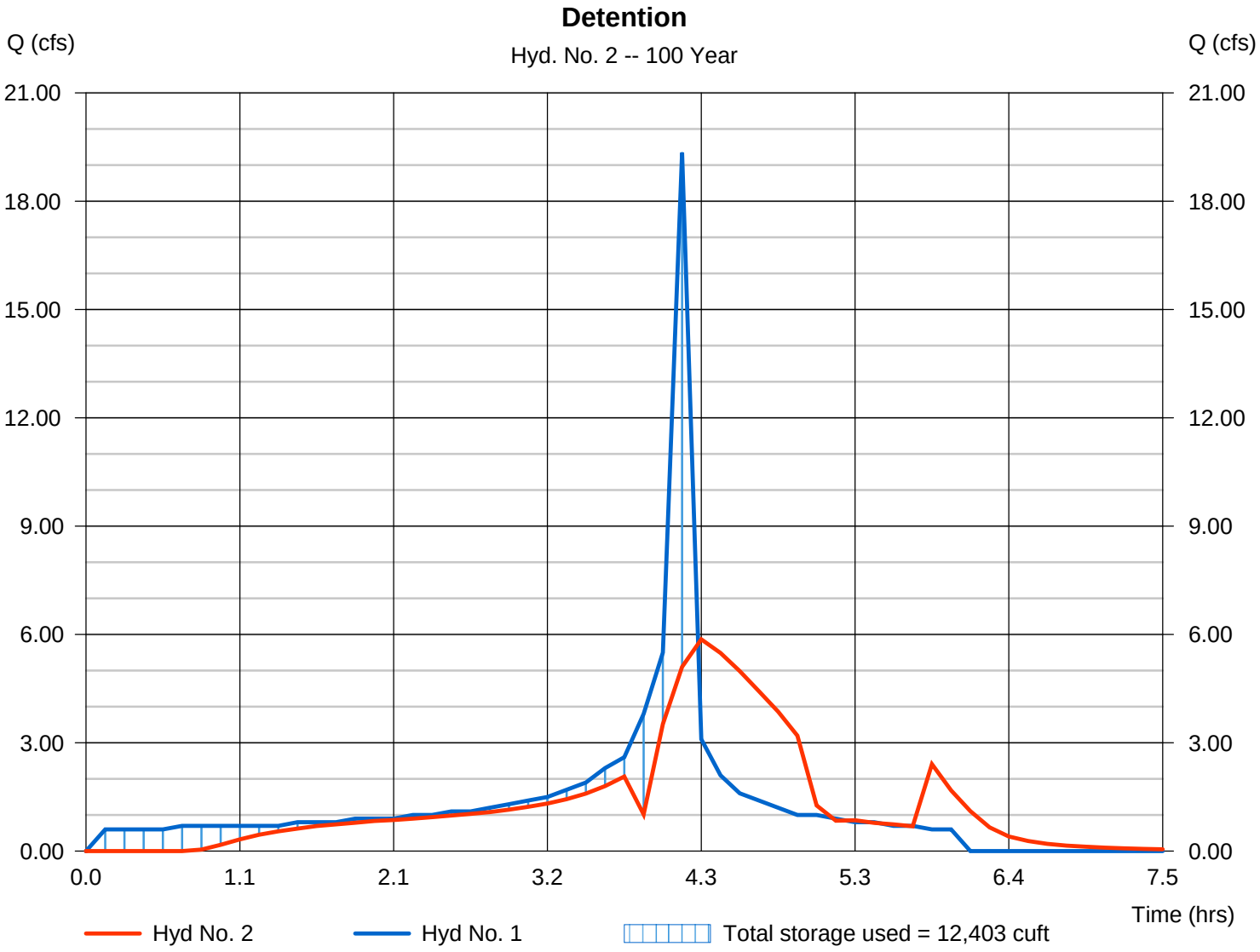
Hydrograph Report

Hyd. No. 2

Detention

Hydrograph type	=	Reservoir	Peak discharge	=	5.863 cfs
Storm frequency	=	100 yrs	Time to peak	=	4.27 hrs
Time interval	=	8 min	Hyd. volume	=	34,580 cuft
Inflow hyd. No.	=	1 - Analysis Point 7	Max. Elevation	=	103.54 ft
Reservoir name	=	Detention #4	Max. Storage	=	12,403 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - Detention #4

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 100.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	100.00	2,446	0	0
1.00	101.00	3,094	2,770	2,770
2.00	102.00	3,799	3,447	6,217
3.00	103.00	4,560	4,180	10,396
4.00	104.00	5,377	4,969	15,365
5.00	105.00	6,252	5,815	21,179
6.00	106.00	7,182	6,717	27,896

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	12.00	Inactive	Inactive
Span (in)	= 18.00	12.00	5.80	24.00
No. Barrels	= 1	1	1	1
Invert El. (ft)	= 95.00	100.50	305.45	48.25
Length (ft)	= 10.00	0.00	0.00	2.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.71	Inactive	Inactive	Inactive
Crest El. (ft)	= 104.50	304.90	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	100.00	0.00	0.00	0.00	0.00	0.00	0.00	---	---	---	---	0.000
1.00	2,770	101.00	17.54 ic	0.95 ic	0.00	0.00	0.00	0.00	---	---	---	---	0.945
2.00	6,217	102.00	17.54 ic	3.78 ic	0.00	0.00	0.00	0.00	---	---	---	---	3.781
3.00	10,396	103.00	17.54 ic	5.35 ic	0.00	0.00	0.00	0.00	---	---	---	---	5.347
4.00	15,365	104.00	17.54 ic	6.55 ic	0.00	0.00	0.00	0.00	---	---	---	---	6.549
5.00	21,179	105.00	17.54 ic	7.56 ic	0.00	0.00	5.55	0.00	---	---	---	---	13.11
6.00	27,896	106.00	17.59 ic	8.46 ic	0.00	0.00	9.13 ic	0.00	---	---	---	---	17.59

APPENDIX D:

Hydrologic Information

SECTION 3
RATIONAL METHOD AND MODIFIED RATIONAL METHOD

3.1 THE RATIONAL METHOD

The Rational Method (RM) is a mathematical formula used to determine the maximum runoff rate from a given rainfall. It has particular application in urban storm drainage, where it is used to estimate peak runoff rates from small urban and rural watersheds for the design of storm drains and small drainage structures. The RM is recommended for analyzing the runoff response from drainage areas up to approximately 1 square mile in size. It should not be used in instances where there is a junction of independent drainage systems or for drainage areas greater than approximately 1 square mile in size. In these instances, the Modified Rational Method (MRM) should be used for junctions of independent drainage systems in watersheds up to approximately 1 square mile in size (see Section 3.4); or the NRCS Hydrologic Method should be used for watersheds greater than approximately 1 square mile in size (see Section 4).

The RM can be applied using any design storm frequency (e.g., 100-year, 50-year, 10-year, etc.). The local agency determines the design storm frequency that must be used based on the type of project and specific local requirements. A discussion of design storm frequency is provided in Section 2.3 of this manual. A procedure has been developed that converts the 6-hour and 24-hour precipitation isopluvial map data to an Intensity-Duration curve that can be used for the rainfall intensity in the RM formula as shown in Figure 3-1. The RM is applicable to a 6-hour storm duration because the procedure uses Intensity-Duration Design Charts that are based on a 6-hour storm duration.

3.1.1 Rational Method Formula

The RM formula estimates the peak rate of runoff at any location in a watershed as a function of the drainage area (A), runoff coefficient (C), and rainfall intensity (I) for a duration equal to the time of concentration (T_c), which is the time required for water to

flow from the most remote point of the basin to the location being analyzed. The RM formula is expressed as follows:

$$Q = C\ I\ A$$

Where: Q = peak discharge, in cubic feet per second (cfs)

C = runoff coefficient, proportion of the rainfall that runs off the surface (no units)

I = average rainfall intensity for a duration equal to the T_c for the area, in inches per hour (Note: If the computed T_c is less than 5 minutes, use 5 minutes for computing the peak discharge, Q)

A = drainage area contributing to the design location, in acres

Combining the units for the expression CIA yields:

$$\left(\frac{1\,\text{acre}\times\text{inch}}{\text{hour}}\right)\left(\frac{43{,}560\,\text{ft}^2}{\text{acre}}\right)\left(\frac{1\,\text{foot}}{12\,\text{inches}}\right)\left(\frac{1\,\text{hour}}{3{,}600\,\text{seconds}}\right) \Rightarrow 1.008\,\text{cfs}$$

For practical purposes the unit conversion coefficient difference of 0.8% can be ignored.

The RM formula is based on the assumption that for constant rainfall intensity, the peak discharge rate at a point will occur when the raindrop that falls at the most upstream point in the tributary drainage basin arrives at the point of interest.

Unlike the MRM (discussed in Section 3.4) or the NRCS hydrologic method (discussed in Section 4), the RM does not create hydrographs and therefore does not add separate subarea hydrographs at collection points. Instead, the RM develops peak discharges in the main line by increasing the T_c as flow travels downstream.

Characteristics of, or assumptions inherent to, the RM are listed below:

- The discharge flow rate resulting from any I is maximum when the I lasts as long as or longer than the T_c.

- The storm frequency of peak discharges is the same as that of I for the given T_c.

- The fraction of rainfall that becomes runoff (or the runoff coefficient, C) is independent of I or precipitation zone number (PZN) condition (PZN Condition is discussed in Section 4.1.2.4).

- The peak rate of runoff is the only information produced by using the RM.

3.1.2 Runoff Coefficient

Table 3-1 lists the estimated runoff coefficients for urban areas. The concepts related to the runoff coefficient were evaluated in a report entitled *Evaluation, Rational Method "C" Values* (Hill, 2002) that was reviewed by the Hydrology Manual Committee. The Report is available at San Diego County Department of Public Works, Flood Control Section and on the San Diego County Department of Public Works web page.

The runoff coefficients are based on land use and soil type. Soil type can be determined from the soil type map provided in Appendix A. An appropriate runoff coefficient (C) for each type of land use in the subarea should be selected from this table and multiplied by the percentage of the total area (A) included in that class. The sum of the products for all land uses is the weighted runoff coefficient ($\Sigma[CA]$). Good engineering judgment should be used when applying the values presented in Table 3-1, as adjustments to these values may be appropriate based on site-specific characteristics. In any event, the impervious percentage (% Impervious) as given in the table, for any area, shall govern the selected value for C. The runoff coefficient can also be calculated for an area based on soil type and impervious percentage using the following formula:

$$C = 0.90 \times (\% \text{ Impervious}) + C_p \times (1 - \% \text{ Impervious})$$

Where: C_p = Pervious Coefficient Runoff Value for the soil type (shown in Table 3-1 as Undisturbed Natural Terrain/Permanent Open Space, 0% Impervious). Soil type can be determined from the soil type map provided in Appendix A.

The values in Table 3-1 are typical for most urban areas. However, if the basin contains rural or agricultural land use, parks, golf courses, or other types of nonurban land use that are expected to be permanent, the appropriate value should be selected based upon the soil and cover and approved by the local agency.

Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS

Land Use		Runoff Coefficient "C"				
			Soil Type			
NRCS Elements	County Elements	% IMPER.	A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78	0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78	0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81	0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

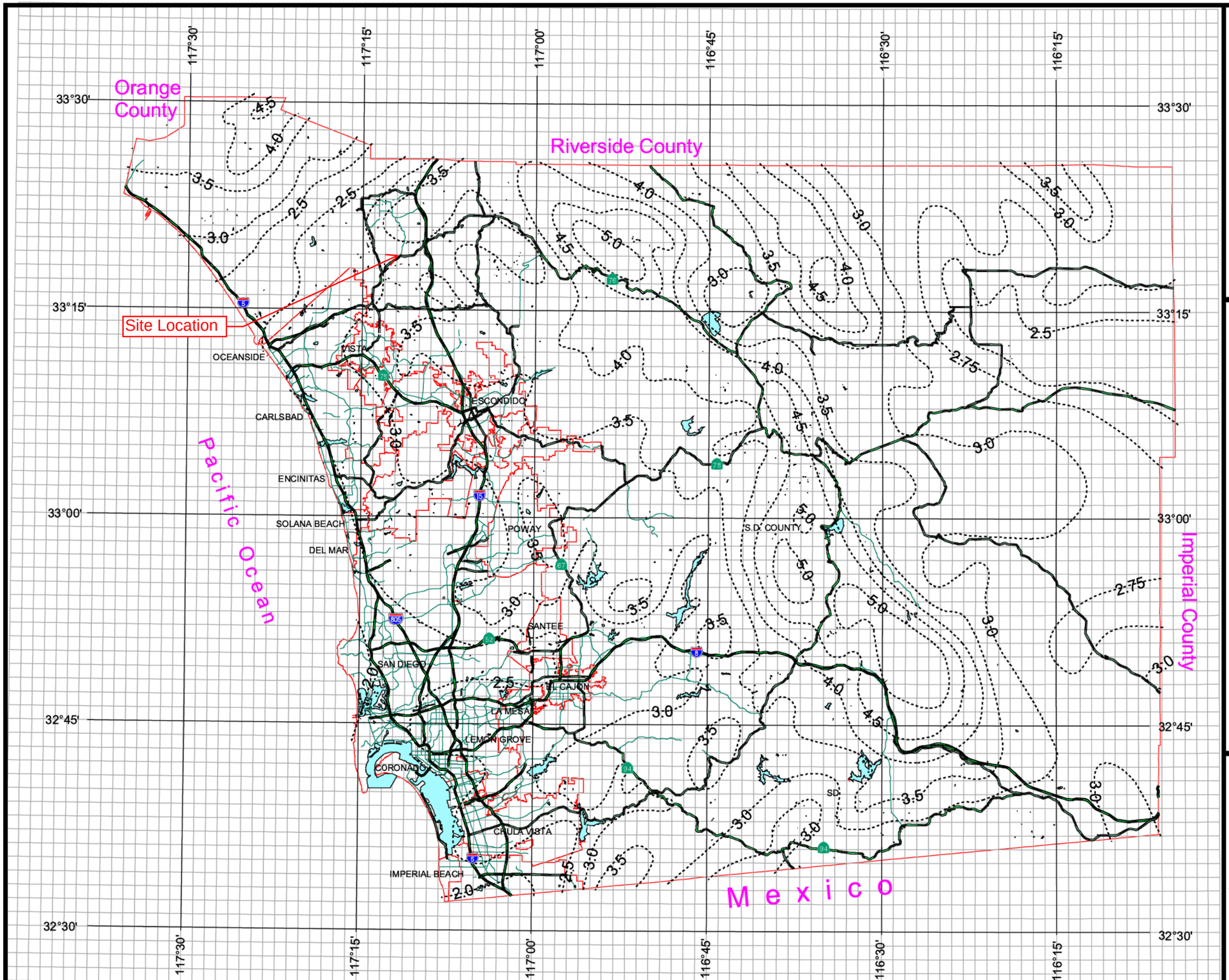
*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, Cp, for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).
DU/A = dwelling units per acre
NRCS = National Resources Conservation Service

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

3.3	Isopluvial (inches)



DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

N
W E
S

THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
Copyright SanGIS. All Rights Reserved.

This products may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG.

This product may contain information which has been reproduced with permission granted by Thomas Brothers Maps.

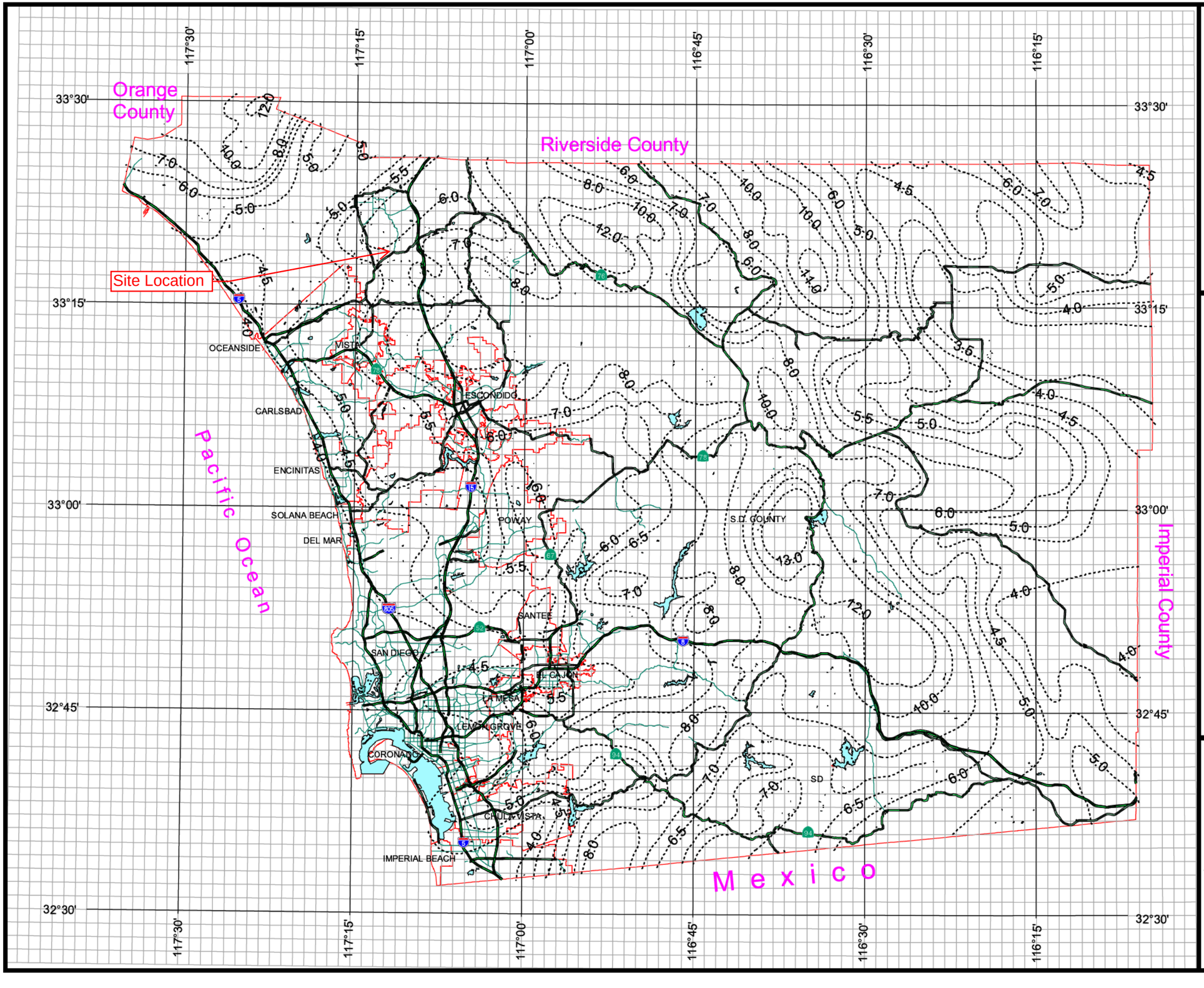
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 24 Hours

6.0 Isopluvial (inches)



DPW GIS
Department of Public Works
Geographic Information Services

SanGIS
We Have San Diego Covered!

N
W E
S

THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
Copyright SanGIS. All Rights Reserved.

This products may contain information from the SANDAG Regional Information System which cannot be reproduced without the written permission of SANDAG.

This product may contain information which has been reproduced with permission granted by Thomas Brothers Maps.

3 0 3 Miles

View Soil Information By Use: All Uses

Printable Version | Add to Shopping Cart

Intro to Soils | Suitabilities and Limitations for Use | Soil Properties and Qualities | Ecological Site Assessment | Soil Reports

Search

Clear | Search

Basic Search

Enter keywords: 3825 Flowerwood Ln, Fallbrook, CA 9

Advanced Search

Clear | Search

"3825 Flowerwood Ln, Fallbrook, CA 92028": No match.

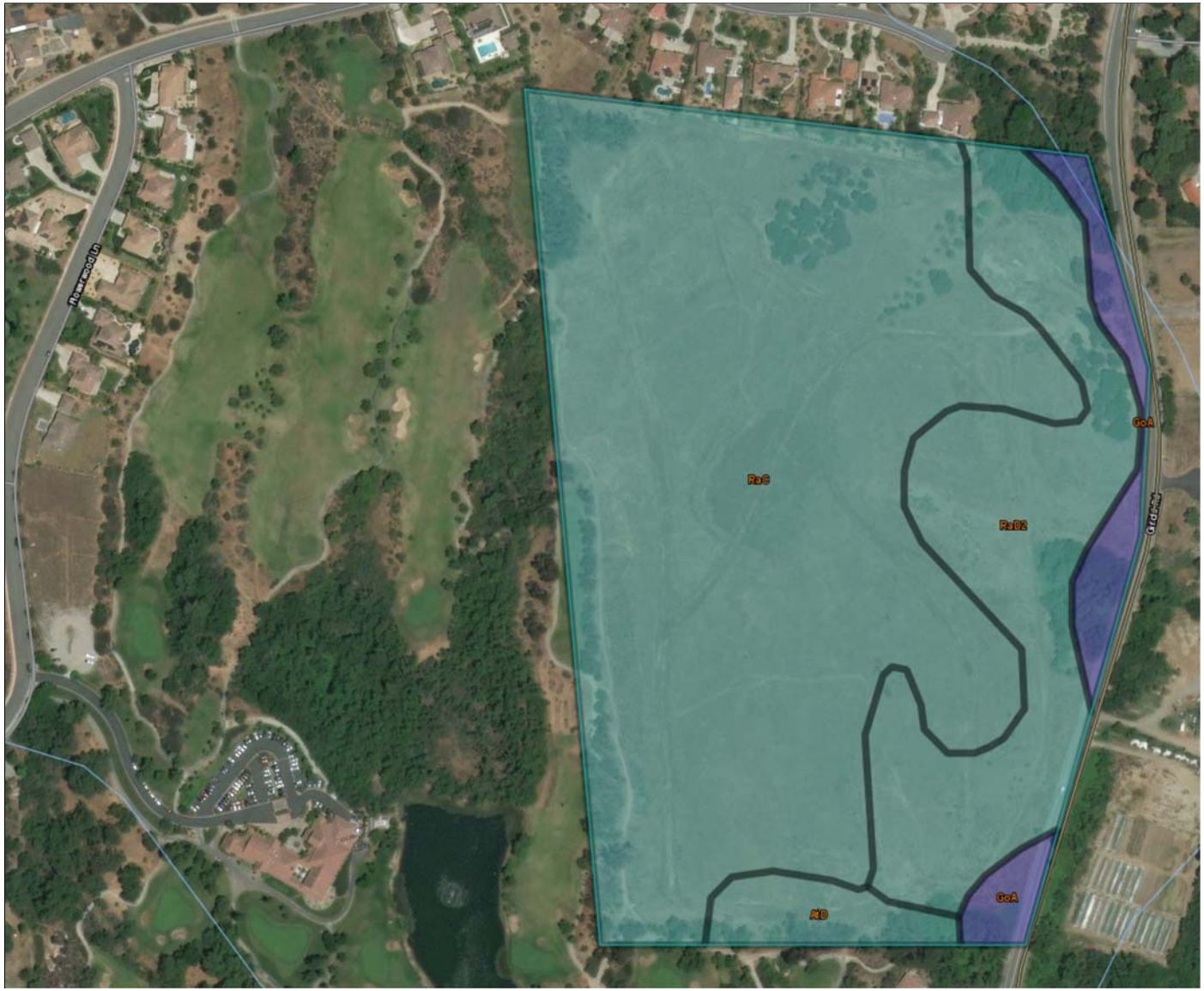
Properties and Qualities Ratings

Open All | Close All

- Soil Chemical Properties
- Soil Erosion Factors
- Soil Health Properties
- **Soil Physical Properties**
  - Available Water Capacity
  - Available Water Storage
  - Available Water Supply, 0 to 100 cm
  - Available Water Supply, 0 to 150 cm
  - Available Water Supply, 0 to 25 cm
  - Available Water Supply, 0 to 50 cm
  - Bulk Density, 15 Bar
  - Bulk Density, One-Tenth Bar
  - Bulk Density, One-Third Bar
  - Linear Extensibility
  - Liquid Limit
  - Organic Matter
  - Percent Clay
  - Percent Sand
  - Percent Silt
  - Plasticity Index
  - Saturated Hydraulic Conductivity (Ksat)
  - Saturated Hydraulic Conductivity (Ksat), Standard Classes
  - Surface Texture
  - Water Content, 15 Bar

Map — Hydrologic Soil Group

Scale (not to scale)



- Water Content, One-Third Bar
- **Soil Qualities and Features**
  - AASHTO Group Classification (Surface)
  - Depth to a Selected Soil Restrictive Layer
  - Depth to Any Soil Restrictive Layer
  - Drainage Class
  - Frost Action
  - Frost-Free Days
  - Hydrologic Soil Group

View Description | View Rating

View Options

Map ☑
Table ☑
Description of Rating ☑
Rating Options ☑
Detailed Description ☐

Advanced Options

Aggregation Method: Dominant Condition
Component Percent Cutoff:
Tie-break Rule: ○ Lower ◉ Higher

View Description | View Rating

- Map Unit Name
- Parent Material Name
- Representative Slope
- Unified Soil Classification (Surface)
- Water Features

Warning: Soil Ratings Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surv design of map units and the level of detail shown in the resulting soil map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do been shown at a more detailed scale.

Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — San Diego County Area, California (CA638)

Summary by Map Unit — San Diego County Area, California (CA638)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AtD	Altamont clay, 9 to 15 percent slopes, warm MAAT, MLRA 20	C	1.6	3.2%
GoA	Grangeville fine sandy loam, 0 to 2 percent slopes	B	2.7	5.1%
RaC	Ramona sandy loam, 5 to 9 percent slopes	C	36.3	69.8%
RaD2	Ramona sandy loam, 9 to 15 percent slopes, eroded	C	11.4	21.9%
Totals for Area of Interest			**51.9**	**100.0%**

Description — Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options — Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

FOIA | Accessibility Statement | Privacy Policy | Non-Discrimination Statement | Information Quality | USA.gov | White House

ance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

0 500 1,000 1,500 2,000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0480G

FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA

AND INCORPORATED AREAS

PANEL 480 OF 2375

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN DIEGO COUNTY	060284	0480	G

Notice: This map was reissued on August 4, 2017 to make a correction. This version replaces any previous versions. See the Notice-to-User Letter that accompanied this correction for details.

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 06073C0480G

MAP REVISED MAY 16, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

APPENDIX E:

303(d) Impaired Waters Information

Statewide

CATEGORY 5

Final 2010 Integrated Report (CWA Section 303(d) List / 305 (b) Report)

USEPA Final Approval: October 11, 2011

2010 CALIFORNIA 303(d) LIST OF WATER QUALITY LIMITED SEGMENTS*

Category 5 criteria: 1) A water segment where standards are not met and a TMDL is required, but not yet completed, for at least one of the pollutants being listed for this segment.

* USGS HUC = US Geological Survey Hydrologic Unit Code. Calwater = State Water Resources Control Board hydrological subunit area or even smaller planning watershed.

** TMDL requirement status definitions for listed pollutants are: A= TMDL still required, B= being addressed by USEPA approved TMDL, C= being addressed by action other than a TMDL

*** Dates relate to the TMDL requirement status, so a date for A= TMDL scheduled completion date, B= Date USEPA approved TMDL, and C= Completion date for action other than a TMDL

REGION	WATER BODY NAME	WATER TYPE	WATERSHED* CALWATER / USGS HUC	• POLLUTANT ○ POTENTIAL SOURCES *Relevant Notes*	ESTIMATED AREA ASSESSED	FIRST YEAR LISTED	TMDL REQUIREMENT STATUS**	TMDL REQUIREMENT DATE***
1	Bodega HU, Bodega Harbor HA	Bay & Harbor	11522000 / 18010111	• Invasive Species ○ Source Unknown	810 Acres	2006	5A	2019
1	Bodega HU, Estero Americano HA, Americano Creek	River & Stream	11530000 / 18010111	• Nutrients ○ Dairies ○ Intensive Animal Feeding Operations ○ Manure Lagoons ○ Pasture Grazing-Riparian ○ Range Grazing-Riparian ○ Range Grazing-Upland *The Bodega HU, Estero Americano HA, Americano Creek includes the following Calwater Super Planning Watersheds (SPWs): 115.30010 and 115.30011. A Water Quality Attainment Strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek TMDL Water Quality Attainment Strategy, adopted by North Coast RWQCB in December 1997.*	38 Miles	1996	5A	2019
1	Bodega HU, Estero Americano HA, estuary	Estuary	11530012 / 18010111	• Nutrients ○ Manure Lagoons ○ Range Grazing-Riparian and/or Upland *The Bodega HU, Estero Americano HA, Americano Creek includes the following Calwater Super Planning Watersheds (SPWs): 115.30010 and 115.30011. A Water Quality Attainment Strategy is attempting to increase voluntary measures for attainment of standards & objectives, as was done in the Estero de San Antonio/Stemple Creek TMDL Water Quality Attainment Strategy, adopted by North Coast RWQCB in December 1997.*	199 Acres	1996	5A	2019
				• Sedimentation/Siltation ○ Erosion/Siltation	199 Acres	1992	5A	2019

				○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers				
9	Pacific Ocean Shoreline, San Diego HU, at the San Diego River outlet, at Dog Beach	Coastal & Bay Shoreline	90711000 / 18070304	• Enterococcus ○ Source Unknown	0.03 Miles	1998	5A	2021
				• Total Coliform ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	0.03 Miles	1998	5A	2010
9	Pacific Ocean Shoreline, San Dieguito HU, at San Dieguito Lagoon Mouth at San Dieguito River Beach	Coastal & Bay Shoreline	90511000 / 18070304	• Total Coliform ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	0.03 Miles	1998	5A	2010
9	Pacific Ocean Shoreline, San Elijo HSA, at Cardiff State Beach at San Elijo Lagoon	Coastal & Bay Shoreline	90461000 / 18070303	• Total Coliform ○ Nonpoint Source ○ Point Source	0.44 Miles	1998	5A	2008
9	Pacific Ocean Shoreline, San Luis Rey HU, at San Luis Rey River mouth	Coastal & Bay Shoreline	90311000 / 18070302	• Enterococcus ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	0.03 Miles	1998	5A	2021
				• Total Coliform ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	0.03 Miles	1998	5A	2021
9	Pacific Ocean Shoreline, San Mateo Canyon HA, at San Mateo Creek outlet	Coastal & Bay Shoreline	90140000 / 18070301	• Total Coliform ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	0.31 Miles	2010	5A	2019
9	Pacific Ocean Shoreline, Scripps HA, at Avenida de la Playa at La Jolla Shores Beach	Coastal & Bay Shoreline	90630000 / 18070304	• Total Coliform ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	0.03 Miles	2010	5A	2019

9	San Luis Rey River, Lower (west of Interstate 15)	River & Stream	90311000 / 18070303	• Chloride ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers *Impairment located at lower 13 miles.*	19 Miles	2002	5A	2019
				• Enterococcus ○ Source Unknown ○ Unknown Nonpoint Source ○ Unknown Point Source	19 Miles	2010	5A	2021
				• Fecal Coliform ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	19 Miles	2010	5A	2021
				• Phosphorus ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	19 Miles	2010	5A	2021
				• Total Dissolved Solids ○ Agriculture-storm runoff ○ Flow Regulation/Modification ○ Golf course activities ○ Industrial Point Sources ○ Natural Sources ○ Surface Mining ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	19 Miles	2002	5A	2019
				• Total Nitrogen as N ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	19 Miles	2010	5A	2021
				• Toxicity ○ Unknown Nonpoint Source ○ Unknown Point Source ○ Urban Runoff/Storm Sewers	19 Miles	2010	5A	2021
9	San Luis Rey River, Upper (east of Interstate 15)	River & Stream	90312000 / 18070303	• Total Nitrogen as N ○ Unknown Nonpoint Source	35 Miles	2010	5A	2021
9	San Marcos Creek	River &	90451000 /	• DDE	19 Miles	2006	5A	2019

APPENDIX F:

BMP Design Calculations

(Refer to Detention Analysis for Details)

COMPLETED POST CONSTRUCTION STORMWATER MANAGEMENT CHECKLIST

Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

Applicability: Required for projects that create and/or replace 5,000 square feet or greater of impervious surface (i.e. asphalt roads, concrete structures, building area, sidewalks, etc.). Impervious surfaces are those that water cannot infiltrate/soak into.

To ensure that required site design measures are implemented in accordance with Phase II Small MS4 General Permit 2013-0001-DWQ, submit working versions of this checklist (electronic or hard copy) to the SDUSD Project Manager, for review during the following project design phases (as applicable):

1. Conceptual Design Phase
2. 100% Schematic Design
3. Design Development
4. 100% Construction Drawings
5. At Project Close-out (final and complete version of checklist) (also submit final and complete version of checklist to EH&S)

Is Project Exempt? ☐ **Yes** ☒ **No**

Exemptions: The following projects are exempt from the Phase II Small MS4 permit storm water site design measures and low impact design requirements:

1. Projects completed before July 1, 2014.
2. Regulated projects that have been designed, approved, and funded prior to July 1, 2014.
3. Interior remodels.
4. Routine maintenance or repair projects such as:
    a. Maintenance, repair, and replacement work on existing underground utilities such as sanitary sewer lines or other utilities.
    b. Exterior wall surface replacement.
    c. Roof replacement.
    d. Pavement or asphalt resurfacing within the existing footprint.
    e. Sidewalk replacement within an existing footprint to replace concrete that is causing a trip hazard.
    f. routine replacement/repair of damaged pavement/asphalt such as pothole repair.
5. Bicycle lanes or pedestrian ramps on existing roads or sidewalks within existing footprint (e.g., no new impervious area).
6. Sidewalks built as a part of new streets or roads and built to direct storm water runoff to adjacent vegetated areas.
7. Bicycle lanes that are built as part of new streets or roads that direct storm water runoff to adjacent vegetated areas.
8. Impervious trails build to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas.
9. Sidewalks, bicycle lanes or trails constructed with permeable surfaces.

***NOTE: If the project meets the exemption requirements, applicable portions of the checklist must still be completed.**

Project Name: Bonsall High School	**Project #:**
Street Address: Gird Road	**Cross Streets: Live Oak Creek Circle**

Project Watershed:
San Luis Ray Hydrologic Unit, Bonsall Hydrologic Subarea (HSA 903.12)

Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

Project Type: **New Development** Re-Development Road Landscaping

Retrofit Utility Other:

Description of Project:

The major development activities include, but are not limited to, clearing & grubbing, grading, construction of new school/classroom buildings, paved parking, walkways, and landscaping. The associated improvements will also include drainage improvements and BMPs construction /implementation. Four detention basins are proposed to mitigate flow from the development. Because the peak flow rate from the overall site is mitigated in the proposed condition, the development will not create drainage impacts to the existing receiving storm drain system.

Areas (in Acres)

Total: 48.96 Disturbed: 25.43 New Impervious: 10.00 Replaced Impervious: N/A

Will more than 50% of Impervious Surface be Replaced?* ☐ Yes ☐ No

*if Yes then runoff from the entire project consisting of all existing, new, and/or replaced impervious surface must be included in the storm water treatment and design calculations. (Not Applicable for New Development)

For projects that are Redevelopment or Road Widening Projects

Total pre-project impervious surface area: _____ Total post-project impervious area: _____

Status of Project

Application Date:_____ Application Deemed Complete Date: _____ Project approval Date:

Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

PART A - SITE DESIGN MEASURES: Which site design measures have been implemented to reduce project site runoff? Applicant must select one or more of the following options below (check all that apply). In addition, the State Water Board's SMARTS Post-Construction Calculator (or equivalent) must be used to quantify the runoff reduction resulting from implementation of any site design measures specified below and attach the calculations to this checklist. If post-construction water balance cannot be achieved with site design measures only, then additional storm water treatment BMPs must be designed for the project as described in PART B below. An electronic copy of the Post-Construction Calculator is available on the State Water Resources Control Board's website: **https://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.**

☐ **Stream Setbacks and Buffers**
(A vegetated area including trees, shrubs, and herbaceous vegetation, that exists or is established to protect a stream system, lake reservoir, or coastal estuarine area)

☒ **Soil Quality Improvement and Maintenance**
(improvements and maintenance through soil amendments and creation of microbial community)

☒ **Tree Planting and Preservation**
(planting and preservation of healthy established trees that include both evergreens and deciduous, as applicable)

☒ **Rooftop and Impervious Area Disconnection**
(Rerouting of rooftop drainage pipes to drain rainwater to rain barrels, cisterns, or permeable areas instead of to the storm water system)

☐ **Porous Pavement**
(Pavement that allows runoff to pass through it, thereby reducing the runoff from a site and surrounding areas and filtering pollutants)

☐ **Green Roofs**
(a vegetative layer grown on a roof (rooftop garden))

☐ **Vegetated Swales**
(A vegetated, open-channel management practice designed specifically to treat and attenuate storm water runoff)

☐ **Rain Barrels and Cisterns**
(system that collects and stores storm water runoff from a roof or other impervious surface)

Description of Site Design Measures Implemented for Project:
Site design measures such as soil quality improvement and maintenance, tree planting and rooftop & impervious area disconnection will be implemented for the site. Approximately 3 acres of landscape area is considered to have an average soil depth of 8" to obtain the soil quality credit in the analysis. Tree planting will be implemented throughout the site where the native landscape will be disturbed. All the building rooftops will be disconnected or discharged to landscape prior to discharging to the harden conveyance system. Impervious areas situated around the proposed buildings and parking lot area will be discharge to adjacent landscape/planter area where feasible.

Volume of runoff that will be treated: Not Applicable

Size of area that will drain to BMP: 31.00 acres (pervious & impervious areas)

Pollutants that will be captured or treated by BMP (check all that apply):

☒ Non-storm water discharges (e.g. irrigation runoff) ☒ Trash/Litter ☒ Sediment ☒ Petroleum Hydrocarbons ☐ Other:

Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

PART B - SOURCE CONTROL MEASURES: Projects that will create and/or replace 5,000 square feet or more of impervious surface must implement standard permanent and/or operational source control measures for pollutant generating activities and sources associated with the end use of the project site. This requires an evaluation of the equipment and activities that will be located or implemented at the project site after construction. Source control measures for the following pollutant generating activities shall be designed consistent with recommendations from the CASQA Stormwater BMP Handbook for New Development and Redevelopment (https://www.casqa.org/resources/bmp-handbooks/new-developmentredevelopment-bmp-handbook). Please check all pollutant generating activities or sources that apply to this project below.

- ☒ **Accidental spills or leaks**
- ☒ **Interior floor drains**
- ☒ **Parking/Storage area maintenance cleaning**
- ☒ **Indoor and structural pest control**
- ☒ **Landscape/outdoor pesticide use waste**
- ☒ **Pools, spas, ponds, decorative fountains, and other water features**
- ☐ **Outdoor storage of equipment or materials**
- ☐ **Vehicle and equipment repair and maintenance**
- ☒ **Fire sprinkler test water**
- ☐ **Loading docks**
- ☐ **Vehicle and equipment**
- ☐ **Fuel dispensing areas**
- ☒ **Storage and handling of solid**
- ☒ **Restaurants, grocery stores, and other food service operations**
- ☒ **Unauthorized non-storm water discharges**
- ☒ **Building and grounds maintenance**
- ☒ **Drain or wash water from boiler drain lines, condensate drain lines, rooftop equipment, drainage sumps, and other sources**

Describe the source control BMPs that will be implemented for the project for all pollutant generating activities checked above:

Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

PART C - STORM WATER TREATMENT/BASELINE HYDROMODIFICATION MEASURES: Only required if site design measures listed above cannot fully meet Permit requirements (i.e., Calculations on SMARTS calculator show that post-construction water balance is not achieved). All stormwater treatment BMPs shall be designed based on the flow-based or volume-based criteria specified in Section F.5.g.2.b (Numeric Sizing Criteria) of the Permit. Treatment BMPs must be designed for each Drainage Management Area (DMA). Bioretention facilities are preferred for treatment but alternative treatment BMPs can be used if the proper documentation and supporting calculations are provided and attached to this checklist. If Alternative BMPs are selected then all sizing and calculations should be prepared by a Registered Civil Engineer.

STEP 1: Calculating What is Required for Treatment BMPs:

If you have a concept plan or design drawings for the proposed project which clearly define impervious and pervious areas you will be able to calculate the amount of area, volume, or flow that is required to be treated by stormwater treatment/hydromodification measures. If your project has more than one discharge point then you will need to divide your project into individual drainage management areas (DMA's) and calculate the required treatment for each DMA. If Bioretention is specified as the treatment control BMP of choice then skip to the Step 2 below for sizing BMPs. If alternative BMPs (BMPs other than bioretention) are utilized then depending on the type of BMP that will be designated for each DMA either volume-based or flow-based calculations should be performed to determine the required treatment volumes or rates. These calculations should be performed by a Registered Civil Engineer. The following sizing criteria should be used when determining volumes and rates for BMPs:

Volume-Based BMP Sizing Criteria:

a) The maximized stormwater capture volume for the tributary are based on historical rainfall records and determined in accordance with Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87 (1998), pages 175-178 (the 85th percentile, 24-hour storm event) **OR:** b.) The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with CASQA's Stormwater BMP Handbook for New and Redevelopment (2003) using local rainfall.

Flow-Based BMP Sizing Criteria:

a) The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity **OR**: b) The flow of runoff produced from a rain event equivalent to at least 2 times the 85th percentile hourly rainfall intensity as determined from local rainfall records.

Treatment Rate or Volume Required for Project:
(If multiple DMA's please attach additional calculations to this checklist) N/A ft_3 or ft./s

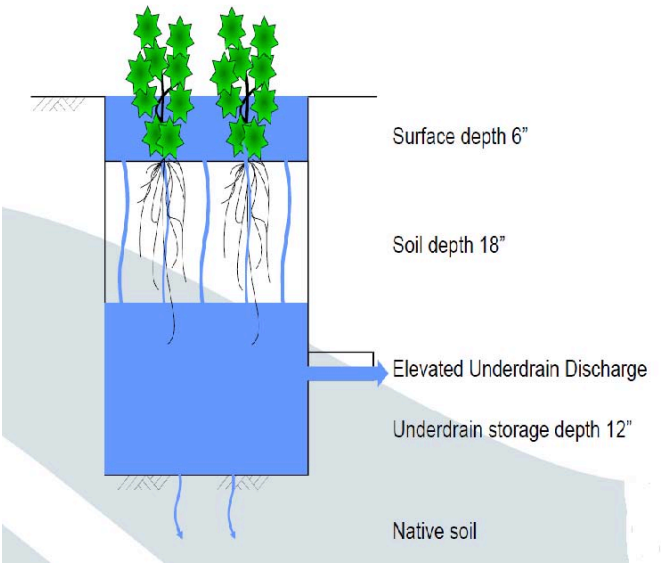
Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

STEP 2: Selecting Treatment/Hydromodification BMPs

Bioretention Facilities or Flow-Through Planters (Suggested BMP by Permit)

☐ Vegetated areas that can be designed as swales, basins, or flow-through planters. Bioretention facilities should be sized based on 4% of the total impervious tributary area to the bioretention facility and in accordance with the typical section below:

Permit-Prescribed Bioretention Vertical Profile



Additional Design Requirements for Bioretention:

-Bioretention facilities located in areas with highly infiltrative soils or high groundwater tables may omit the underdrain.

-The 18" Soil layer (Planting layer) shall be comprised of a mixture of sand (60-70%) and compost (30-40%) and shall meet ASTM C33 Standards.

The 12" Storage layer shall be comprised of gravel and underdrain shall be placed near the top of this layer.

- No liners or other barriers shall be used unless there is a structure or other geotechnical hazard located within 10 feet of facility.

- The appropriate plant palette should be selected based on the soil type and max. available water use.

Total Bioretention Area Required (based on 4% of impervious area) _____ ft^2 Total Bioretention Area Provided: _____ ft^2

If the Total Bioretntion Area <u>is less than</u> the area required please explain why in the space below:

☐ **Other BMPs as listed below (check all that apply)**

- ☐ **Extended Detention Basin**
- ☐ **Infiltration Basin or Infiltration Trench**
- ☐ **High-Rate Biofilters (e.g. Tree wells or other)** [(1)]
- ☐ **High-Rate Media Filter (e.g. Vault unit with replaceable cartridges)** [(1)]
- ☐ **Other equally effective as bioretention BMP _____**

(1) High-rate Biofilters or Media Filters are only allowed if bioretention or equivalent facility is proven to be infeasible for the project and if the following conditions apply: 1) project is creating or replacing an acre or less and is located in an area that has at least 85% of the site covered by permanent structures; 2) The proposed facility is receiving runoff solely from existing (pre-project) impervious areas.

Post-Construction Stormwater Management Checklist* (5,000 SF or Greater)

Please attach the completed Excel File for the State Water Boards SMARTS Post-Construction Calculator or equivalent for all Site Design Measures (Part A).

☒Attached ☐ If not attached, how were the calculations submitted?

Has all documentation for any source control measure that will be implemented on project been attached to this checklist (e.g.. CASQA Fact Sheets)?

☐ Yes ☒ No

Have all calculations for design of Storm water Treatment Facilities (bioretention facilities, etc.) been performed and attached to this report?

☒ Yes ☐ No

PART D - RUNOFF CONTROL

Does the project increase storm water runoff for the 100 year 6 hour storm? **☒ Yes** **☐ No**

If YES, describe the mitigation measures that will be implemented to reduce runoff from pre-development to post-development:

PART E - POST- CONSTRUCTION BMP FOLLOW-UP (to be completed after construction)

Where was the post-construction storm water treatment system installed (Circle all that apply): Onsite Joint storm water treatment facility Offsite

O&M Responsibility of the Site Design and Treatment BMPs for the life of the project:

☒ FM **☐ Contractor** **☐Other: _____**

BMP O&M procedures/guidance provided? **☐ Yes** **☒ No**

Date of Installation:

Date of post-construction inspection: **Inspected by:**

Proper Installation? **☐Yes** **☐No** **Corrective actions needed:**

Post-Construction Water Balance Calculator

User may make changes from any cell that is orange or brown in color (similar to the cells to the immediate right). Cells in green are calculated for you.		(Step 1a) If you know the 85th percentile storm event for your location enter it in the box below	(Step 1b) If you can not answer 1a then select the county where the project is located (click on the cell to the right for drop-down): This will determine the average 85th percentile 24 hr. storm event for your site, which will appear under precipitation to left.	***SAN_DIEGO***
			(Step 1c) If you would like a more percise value select the location closest to your site. If you do not recgonize any of these locations, leave this drop-down menu at location. The average value for the County will be used.	**OCEANSIDE PUMPING PLANT**

Project Information			***Runoff Calculations***		
Project Name:	***Bonsall High School***		(Step 2) Indicate the Soil Type (dropdown menu to right):	***Group C Soils***	**Low infiltration. Sandy clay loam. Infiltration rate 0.05 to 0.15 inch/hr when wet.**
Waste Discharge Identification (WDID):	***Optional***		(Step 3) Indicate the existing **dominant** non-built land Use Type (dropdown menu to right):	***Brush: >75% ground cover***	
Date:	***Jan-18***		(Step 4) Indicate the proposed **dominant** non-built land Use Type (dropdown menu to right):	***Brush or chaparral covering more than 75% of the open space***	
Sub Drainage Area Name (from map):	***Optional***			**Complete Either**	
Runoff Curve Numbers				**Sq Ft**	**Acres**
Existing Runoff Curve Number	**65**		*(Step 5) Total Project Site Area:*		**48.96**
Proposed Development Runoff Curve Number	**78**		*(Step 6) Sub-watershed Area:*		**25.43**
Design Storm			*Percent of total project :*	**52%**	
Based on the County you indicated above, we have included the 85 percentile average 24 hr event - P85 (in)^ for your area.	**0.72**	**in**			
The Amount of rainfall needed for runoff to occur (Existing runoff curve number -P from existing RCN (in)^)	**1.09**	**In**	***(Step 7) Sub-watershed Conditions***	**Complete Either**	**Calculated Acres**
P used for calculations (in) (the greater of the above two criteria)	**1.09**	**In**	Sub-watershed Area (acres)	**Sq Ft**	**Acres** **25.43**
^Available at www.cabmphandbooks.com			Existing Rooftop Impervious Coverage		**0** **0.00**
			Existing Non-Rooftop Impervious Coverage		**0.00** **0.00**
			Proposed Rooftop Impervious Coverage		**1.8** **1.80**
			Proposed Non-Rooftop Impervious Coverage		**8.2** **8.20**
			Credits	**Acres**	**Square Feet**
			Porous Pavement	**0.00**	**0**
			Tree Planting	**0.88**	**38,333**
Pre-Project Runoff Volume (cu ft)	**3.35**	**Cu.Ft.**	Downspout Disconnection	**0.90**	**39,204**
Project-Related Runoff Volume Increase w/o credits (cu ft)	**7,659**	**Cu.Ft.**	Impervious Area Disconnection	**0.82**	**35,719**
			Green Roof	**0.00**	**0**
			Stream Buffer	**0.00**	**0**
Project-Related Volume Increase with Credits (cu ft)	**0**	**Cu.Ft.**	Vegetated Swales	**0.00**	**0**
			Subtotal	**2.60**	**113,256**
			Subtotal Runoff Volume Reduction Credit	**783 Cu. Ft.**	
You have achieved your minimum requirements			***(Step 9) Impervious Volume Reduction Credits***	**Volume (cubic feet)**	
			Rain Barrels/Cisterns	**0 Cu. Ft.**	
			Soil Quality	**6,970 Cu. Ft.**	
			Subtotal Runoff Volume Reduction	**6,970 Cu. Ft.**	
			Total Runoff Volume Reduction Credit	**7,753 Cu. Ft.**	

Tree Planting Credit Worksheet

Please fill out a tree canopy credit worksheet for each project sub-watershed.

Tree Canopy Credit Criteria	Number of Trees Planted	Area Credit (acres)
Number of proposed evergreen trees to be planted (credit = number of trees x 0.005)*	0	0.00
Number of proposed deciduous trees to be planted (credit = number of trees x 0.0025)*	350	0.88
	Square feet Under Canopy	
Square feet under an existing tree canopy, that will remain on the property, with an average diameter at 4.5 ft above grade (i.e., diameter at breast height or DBH) is LESS than 12 in diameter.	0	0.00
Square feet under an existing tree canopy that will remain on the property, with an average diameter at 4.5 ft above grade (i.e., diameter at breast height or DBH) is 12 in diameter or GREATER.	0	0.00
Please describe below how the project will ensure that these trees will be maintained.		

Return to Calculator

* credit amount based on credits from Stormwater Quality Design Manual for the Sacramento and South Placer Regions

Downspout Disconnection Credit Worksheet

Please fill out a downspout disconnection credit worksheet for each project subwatershed. If you answer yes to all questions, all rooftop area draining to each downspout will be subtracted from your

Downspout Disconnection Credit Criteria		
Do downspouts and any extensions extend at least six feet from a basement and two feet from a crawl space or concrete slab?	○ Yes	◉ No
Is the area of rooftop connecting to each disconnected downspout 600 square feet or less?	○ Yes	◉ No
raised bed or planter box or does it drain as sheet flow to a landscaped area large enough to contain the roof runoff from the design storm event?	○ Yes	◉ No
The Stream Buffer and/or Vegetated Swale credits **will not** be taken in this sub-watershed area?	◉ Yes	○ No
Percentage of existing 0 Acre(s) of rooftop surface that have disconnected downspouts	0	
Percentage of the proposed 1.8 Acre(s) of rooftop surface that have disconnected downspouts	100	
	Return to Calculato	

Impervious Area Disconnection Credit Worksheet

Please fill out an impervious area disconnection credit worksheet for each project sub-watershed. If you answer yes to all questions, all non-rooftop impervious surface area will be subtracted from your proposed non-rooftop impervious coverage.

Non-Rooftop Disconnection Credit Criteria	Response
Is the maximum contributing impervious flow path length less than 75 feet or, if equal or greater than 75 feet, is a storage device (e.g. French drain, bioretention area, gravel trench) implemented to achieve the required disconnection length?	(●) Yes ( ) No
Is the impervious area to any one discharge location less than 5,000 square feet?	(●) Yes ( ) No
The Stream Buffer credit **will not** be taken in this sub-watershed area?	(●) Yes ( ) No

Percentage of existing 0 Acre(s) of non-rooftop surface area disconnected	0
Percentage of the proposed 8.2 Acre(s) of non-rooftop surface area disconnected	10

Return to Calculator

Please fill out a soil quality worksheet for each project sub-watershed.

	Response
Will the soils used for landscaping meet the ideal bulk densities listed in Table 1 below?[1]	◉ Yes ○ No
weighted bulk density within the top 12 inches for soils used for landscaping (in g/cm^3)* , fill in the cell to the right and skip to cell G11. If not select from the drop-down menu in G10.	
If you answered yes to the question above, but you do not know the exact bulk density, which of the soil types in the drop down menu to the right best describes the top 12 inches for soils used for landscaping (in g/cm^3).	Sandy clay loams, loams, clay loams
What is the average depth of your landscaped soil media meeting the above criteria (inches)?	8
What is the total area of the landscaped areas meeting the above criteria (in acres)?	3

Return to Calculator

Table 1

Sands, loamy sands	<1.6
Sandy loams, loams	<1.4
loams	<1.4
Silts, silt loams	<1.3
Silt loams, silty clay loams	<1.1
Sandy clays, silty clays, some clay loams (35-45% clay)	<1.1
Clays (>45% clay)	<1.1

Credit (cu ft) **6969.6**

[1] USDA NRCS. "Soil Quality Urban Technical Note No.2-Urban Soil Compaction". March http://soils.usda.gov/sqi/management/files/sq_utn_2.pdf

* To determine how to calculate density see: http://www.globe.gov/tctg/bulkden.pdf?sectionID=94

APPENDIX G:

BMPs Fact Sheets

Site Design & Landscape Planning SD-10

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- ☑ Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

Designing New Installations

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.
- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Conserve Natural Areas during Landscape Planning

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands.

Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.
- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and

regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

Protection of Slopes and Channels during Landscape Design

- Convey runoff safely from the tops of slopes.
- Avoid disturbing steep or unstable slopes.
- Avoid disturbing natural channels.
- Stabilize disturbed slopes as quickly as possible.
- Vegetate slopes with native or drought tolerant vegetation.
- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.
- Consider other design principles that are comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Roof Runoff Controls SD-11

Rain Garden

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- Collect and Convey

Description

Various roof runoff controls are available to address stormwater that drains off rooftops. The objective is to reduce the total volume and rate of runoff from individual lots, and retain the pollutants on site that may be picked up from roofing materials and atmospheric deposition. Roof runoff controls consist of directing the roof runoff away from paved areas and mitigating flow to the storm drain system through one of several general approaches: cisterns or rain barrels; dry wells or infiltration trenches; pop-up emitters, and foundation planting. The first three approaches require the roof runoff to be contained in a gutter and downspout system. Foundation planting provides a vegetated strip under the drip line of the roof.

Approach

Design of individual lots for single-family homes as well as lots for higher density residential and commercial structures should consider site design provisions for containing and infiltrating roof runoff or directing roof runoff to vegetative swales or buffer areas. Retained water can be reused for watering gardens, lawns, and trees. Benefits to the environment include reduced demand for potable water used for irrigation, improved stormwater quality, increased groundwater recharge, decreased runoff volume and peak flows, and decreased flooding potential.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Designing New Installations

Cisterns or Rain Barrels

One method of addressing roof runoff is to direct roof downspouts to cisterns or rain barrels. A cistern is an above ground storage vessel with either a manually operated valve or a permanently open outlet. Roof runoff is temporarily stored and then released for irrigation or infiltration between storms. The number of rain

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

barrels needed is a function of the rooftop area. Some low impact developers recommend that every house have at least 2 rain barrels, with a minimum storage capacity of 1000 liters. Roof barrels serve several purposes including mitigating the first flush from the roof which has a high volume, amount of contaminants, and thermal load. Several types of rain barrels are commercially available. Consideration must be given to selecting rain barrels that are vector proof and childproof. In addition, some barrels are designed with a bypass valve that filters out grit and other contaminants and routes overflow to a soak-away pit or rain garden.

If the cistern has an operable valve, the valve can be closed to store stormwater for irrigation or infiltration between storms. This system requires continual monitoring by the resident or grounds crews, but provides greater flexibility in water storage and metering. If a cistern is provided with an operable valve and water is stored inside for long periods, the cistern must be covered to prevent mosquitoes from breeding.

A cistern system with a permanently open outlet can also provide for metering stormwater runoff. If the cistern outlet is significantly smaller than the size of the downspout inlet (say ¼ to ½ inch diameter), runoff will build up inside the cistern during storms, and will empty out slowly after peak intensities subside. This is a feasible way to mitigate the peak flow increases caused by rooftop impervious land coverage, especially for the frequent, small storms.

Dry wells and Infiltration Trenches

Roof downspouts can be directed to dry wells or infiltration trenches. A dry well is constructed by excavating a hole in the ground and filling it with an open graded aggregate, and allowing the water to fill the dry well and infiltrate after the storm event. An underground connection from the downspout conveys water into the dry well, allowing it to be stored in the voids. To minimize sedimentation from lateral soil movement, the sides and top of the stone storage matrix can be wrapped in a permeable filter fabric, though the bottom may remain open. A perforated observation pipe can be inserted vertically into the dry well to allow for inspection and maintenance.

In practice, dry wells receiving runoff from single roof downspouts have been successful over long periods because they contain very little sediment. They must be sized according to the amount of rooftop runoff received, but are typically 4 to 5 feet square, and 2 to 3 feet deep, with a minimum of 1-foot soil cover over the top (maximum depth of 10 feet).

To protect the foundation, dry wells must be set away from the building at least 10 feet. They must be installed in solids that accommodate infiltration. In poorly drained soils, dry wells have very limited feasibility.

Infiltration trenches function in a similar manner and would be particularly effective for larger roof areas. An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. These are described under Treatment Controls.

Pop-up Drainage Emitter

Roof downspouts can be directed to an underground pipe that daylights some distance from the building foundation, releasing the roof runoff through a pop-up emitter. Similar to a pop-up irrigation head, the emitter only opens when there is flow from the roof. The emitter remains flush to the ground during dry periods, for ease of lawn or landscape maintenance.

Foundation Planting

Landscape planting can be provided around the base to allow increased opportunities for stormwater infiltration and protect the soil from erosion caused by concentrated sheet flow coming off the roof. Foundation plantings can reduce the physical impact of water on the soil and provide a subsurface matrix of roots that encourage infiltration. These plantings must be sturdy enough to tolerate the heavy runoff sheet flows, and periodic soil saturation.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Supplemental Information

Examples

- City of Ottawa's Water Links Surface –Water Quality Protection Program
- City of Toronto Downspout Disconnection Program
- City of Boston, MA, Rain Barrel Demonstration Program

Other Resources

Hager, Marty Catherine, Stormwater, "Low-Impact Development", January/February 2003. www.stormh2o.com

Low Impact Urban Design Tools, Low Impact Development Design Center, Beltsville, MD. www.lid-stormwater.net

Start at the Source, Bay Area Stormwater Management Agencies Association, 1999 Edition

Storm Drain Signage SD-13

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- ☑ Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Waste materials dumped into storm drain inlets can have severe impacts on receiving and ground waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

Approach

The stencil or affixed sign contains a brief statement that prohibits dumping of improper materials into the urban runoff conveyance system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

Suitable Applications

Stencils and signs alert the public to the destination of pollutants discharged to the storm drain. Signs are appropriate in residential, commercial, and industrial areas, as well as any other area where contributions or dumping to storm drains is likely.

Design Considerations

Storm drain message markers or placards are recommended at all storm drain inlets within the boundary of a development project. The marker should be placed in clear sight facing toward anyone approaching the inlet from either side. All storm drain inlet locations should be identified on the development site map.

Designing New Installations

The following methods should be considered for inclusion in the project design and show on project plans:

- Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language. Examples include "NO DUMPING

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

– DRAINS TO OCEAN" and/or other graphical icons to discourage illegal dumping.

- Post signs with prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.

Note - Some local agencies have approved specific signage and/or storm drain message placards for use. Consult local agency stormwater staff to determine specific requirements for placard types and methods of application.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. If the project meets the definition of "redevelopment", then the requirements stated under " designing new installations" above should be included in all project design plans.

Additional Information

Maintenance Considerations

- Legibility of markers and signs should be maintained. If required by the agency with jurisdiction over the project, the owner/operator or homeowner's association should enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards or signs.

Placement

- Signage on top of curbs tends to weather and fade.
- Signage on face of curbs tends to be worn by contact with vehicle tires and sweeper brooms.

Supplemental Information

Examples

- Most MS4 programs have storm drain signage programs. Some MS4 programs will provide stencils, or arrange for volunteers to stencil storm drains as part of their outreach program.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Extended Detention Basin TC-22

Design Considerations

- Tributary Area
- Area Required
- Hydraulic Head

Description

Dry extended detention ponds (a.k.a. dry ponds, extended detention basins, detention ponds, extended detention ponds) are basins whose outlets have been designed to detain the stormwater runoff from a water quality design storm for some minimum time (e.g., 48 hours) to allow particles and associated pollutants to settle. Unlike wet ponds, these facilities do not have a large permanent pool. They can also be used to provide flood control by including additional flood detention storage.

Targeted Constituents

☑	Sediment	▲
☑	Nutrients	●
☑	Trash	■
☑	Metals	▲
☑	Bacteria	▲
☑	Oil and Grease	▲
☑	Organics	▲

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

California Experience

Caltrans constructed and monitored 5 extended detention basins in southern California with design drain times of 72 hours. Four of the basins were earthen, less costly and had substantially better load reduction because of infiltration that occurred, than the concrete basin. The Caltrans study reaffirmed the flexibility and performance of this conventional technology. The small headloss and few siting constraints suggest that these devices are one of the most applicable technologies for stormwater treatment.

Advantages

- Due to the simplicity of design, extended detention basins are relatively easy and inexpensive to construct and operate.
- Extended detention basins can provide substantial capture of sediment and the toxics fraction associated with particulates.
- Widespread application with sufficient capture volume can provide significant control of channel erosion and enlargement caused by changes to flow frequency

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

relationships resulting from the increase of impervious cover in a watershed.

Limitations

- Limitation of the diameter of the orifice may not allow use of extended detention in watersheds of less than 5 acres (would require an orifice with a diameter of less than 0.5 inches that would be prone to clogging).
- Dry extended detention ponds have only moderate pollutant removal when compared to some other structural stormwater practices, and they are relatively ineffective at removing soluble pollutants.
- Although wet ponds can increase property values, dry ponds can actually detract from the value of a home due to the adverse aesthetics of dry, bare areas and inlet and outlet structures.

Design and Sizing Guidelines

- Capture volume determined by local requirements or sized to treat 85% of the annual runoff volume.
- Outlet designed to discharge the capture volume over a period of hours.
- Length to width ratio of at least 1.5:1 where feasible.
- Basin depths optimally range from 2 to 5 feet.
- Include energy dissipation in the inlet design to reduce resuspension of accumulated sediment.
- A maintenance ramp and perimeter access should be included in the design to facilitate access to the basin for maintenance activities and for vector surveillance and control.
- Use a draw down time of 48 hours in most areas of California. Draw down times in excess of 48 hours may result in vector breeding, and should be used only after coordination with local vector control authorities. Draw down times of less than 48 hours should be limited to BMP drainage areas with coarse soils that readily settle and to watersheds where warming may be determined to downstream fisheries.

Construction/Inspection Considerations

- Inspect facility after first large to storm to determine whether the desired residence time has been achieved.
- When constructed with small tributary area, orifice sizing is critical and inspection should verify that flow through additional openings such as bolt holes does not occur.

Performance

One objective of stormwater management practices can be to reduce the flood hazard associated with large storm events by reducing the peak flow associated with these storms. Dry extended detention basins can easily be designed for flood control, and this is actually the primary purpose of most detention ponds.

Dry extended detention basins provide moderate pollutant removal, provided that the recommended design features are incorporated. Although they can be effective at removing some pollutants through settling, they are less effective at removing soluble pollutants because of the absence of a permanent pool. Several studies are available on the effectiveness of dry extended detention ponds including one recently concluded by Caltrans (2002).

The load reduction is greater than the concentration reduction because of the substantial infiltration that occurs. Although the infiltration of stormwater is clearly beneficial to surface receiving waters, there is the potential for groundwater contamination. Previous research on the effects of incidental infiltration on groundwater quality indicated that the risk of contamination is minimal.

There were substantial differences in the amount of infiltration that were observed in the earthen basins during the Caltrans study. On average, approximately 40 percent of the runoff entering the unlined basins infiltrated and was not discharged. The percentage ranged from a high of about 60 percent to a low of only about 8 percent for the different facilities. Climatic conditions and local water table elevation are likely the principal causes of this difference. The least infiltration occurred at a site located on the coast where humidity is higher and the basin invert is within a few meters of sea level. Conversely, the most infiltration occurred at a facility located well inland in Los Angeles County where the climate is much warmer and the humidity is less, resulting in lower soil moisture content in the basin floor at the beginning of storms.

Vegetated detention basins appear to have greater pollutant removal than concrete basins. In the Caltrans study, the concrete basin exported sediment and associated pollutants during a number of storms. Export was not as common in the earthen basins, where the vegetation appeared to help stabilize the retained sediment.

Siting Criteria

Dry extended detention ponds are among the most widely applicable stormwater management practices and are especially useful in retrofit situations where their low hydraulic head requirements allow them to be sited within the constraints of the existing storm drain system. In addition, many communities have detention basins designed for flood control. It is possible to modify these facilities to incorporate features that provide water quality treatment and/or channel protection. Although dry extended detention ponds can be applied rather broadly, designers need to ensure that they are feasible at the site in question. This section provides basic guidelines for siting dry extended detention ponds.

In general, dry extended detention ponds should be used on sites with a minimum area of 5 acres. With this size catchment area, the orifice size can be on the order of 0.5 inches. On smaller sites, it can be challenging to provide channel or water quality control because the orifice diameter at the outlet needed to control relatively small storms becomes very small and thus prone to clogging. In addition, it is generally more cost-effective to control larger drainage areas due to the economies of scale.

Extended detention basins can be used with almost all soils and geology, with minor design adjustments for regions of rapidly percolating soils such as sand. In these areas, extended detention ponds may need an impermeable liner to prevent ground water contamination.

The base of the extended detention facility should not intersect the water table. A permanently wet bottom may become a mosquito breeding ground. Research in Southwest Florida (Santana et al., 1994) demonstrated that intermittently flooded systems, such as dry extended detention ponds, produce more mosquitoes than other pond systems, particularly when the facilities remained wet for more than 3 days following heavy rainfall.

A study in Prince George's County, Maryland, found that stormwater management practices can increase stream temperatures (Galli, 1990). Overall, dry extended detention ponds increased temperature by about 5°F. In cold water streams, dry ponds should be designed to detain stormwater for a relatively short time (i.e., 24 hours) to minimize the amount of warming that occurs in the basin.

Additional Design Guidelines

In order to enhance the effectiveness of extended detention basins, the dimensions of the basin must be sized appropriately. Merely providing the required storage volume will not ensure maximum constituent removal. By effectively configuring the basin, the designer will create a long flow path, promote the establishment of low velocities, and avoid having stagnant areas of the basin. To promote settling and to attain an appealing environment, the design of the basin should consider the length to width ratio, cross-sectional areas, basin slopes and pond configuration, and aesthetics (Young et al., 1996).

Energy dissipation structures should be included for the basin inlet to prevent resuspension of accumulated sediment. The use of stilling basins for this purpose should be avoided because the standing water provides a breeding area for mosquitoes.

Extended detention facilities should be sized to completely capture the water quality volume. A micropool is often recommended for inclusion in the design and one is shown in the schematic diagram. These small permanent pools greatly increase the potential for mosquito breeding and complicate maintenance activities; consequently, they are not recommended for use in California.

A large aspect ratio may improve the performance of detention basins; consequently, the outlets should be placed to maximize the flowpath through the facility. The ratio of flowpath length to width from the inlet to the outlet should be at least 1.5:1 (L:W) where feasible. Basin depths optimally range from 2 to 5 feet.

The facility's drawdown time should be regulated by an orifice or weir. In general, the outflow structure should have a trash rack or other acceptable means of preventing clogging at the entrance to the outflow pipes. The outlet design implemented by Caltrans in the facilities constructed in San Diego County used an outlet riser with orifices

Figure 1
Example of Extended Detention Outlet Structure

sized to discharge the water quality volume, and the riser overflow height was set to the design storm elevation. A stainless steel screen was placed around the outlet riser to ensure that the orifices would not become clogged with debris. Sites either used a separate riser or broad crested weir for overflow of runoff for the 25 and greater year storms. A picture of a typical outlet is presented in Figure 1.

The outflow structure should be sized to allow for complete drawdown of the water quality volume in 72 hours. No more than 50% of the water quality volume should drain from the facility within the first 24 hours. The outflow structure can be fitted with a valve so that discharge from the basin can be halted in case of an accidental spill in the watershed.

Summary of Design Recommendations

(1) Facility Sizing - The required water quality volume is determined by local regulations or the basin should be sized to capture and treat 85% of the annual runoff volume. See Section 5.5.1 of the handbook for a discussion of volume-based design.

Basin Configuration – A high aspect ratio may improve the performance of detention basins; consequently, the outlets should be placed to maximize the flowpath through the facility. The ratio of flowpath length to width from the inlet to the outlet should be at least 1.5:1 (L:W). The flowpath length is defined as the distance from the inlet to the outlet as measured at the surface. The width is defined as the mean width of the basin. Basin depths optimally range from 2 to 5 feet. The basin may include a sediment forebay to provide the opportunity for larger particles to settle out.

A micropool should not be incorporated in the design because of vector concerns. For online facilities, the principal and emergency spillways must be sized to provide 1.0 foot of freeboard during the 25-year event and to safely pass the flow from 100-year storm.

(2) Pond Side Slopes - Side slopes of the pond should be 3:1 (H:V) or flatter for grass stabilized slopes. Slopes steeper than 3:1 (H:V) must be stabilized with an appropriate slope stabilization practice.

(3) Basin Lining – Basins must be constructed to prevent possible contamination of groundwater below the facility.

(4) Basin Inlet – Energy dissipation is required at the basin inlet to reduce resuspension of accumulated sediment and to reduce the tendency for short-circuiting.

(5) Outflow Structure - The facility's drawdown time should be regulated by a gate valve or orifice plate. In general, the outflow structure should have a trash rack or other acceptable means of preventing clogging at the entrance to the outflow pipes.

The outflow structure should be sized to allow for complete drawdown of the water quality volume in 72 hours. No more than 50% of the water quality volume should drain from the facility within the first 24 hours. The outflow structure should be fitted with a valve so that discharge from the basin can be halted in case of an accidental spill in the watershed. This same valve also can be used to regulate the rate of discharge from the basin.

The discharge through a control orifice is calculated from:

$$Q = CA(2gH-H_o)^{0.5}$$

where: Q = discharge (ft^3/s)
C = orifice coefficient
A = area of the orifice (ft^2)
g = gravitational constant (32.2)
H = water surface elevation (ft)
H_o = orifice elevation (ft)

Recommended values for C are 0.66 for thin materials and 0.80 when the material is thicker than the orifice diameter. This equation can be implemented in spreadsheet form with the pond stage/volume relationship to calculate drain time. To do this, use the initial height of the water above the orifice for the water quality volume. Calculate the discharge and assume that it remains constant for approximately 10 minutes. Based on that discharge, estimate the total discharge during that interval and the new elevation based on the stage volume relationship. Continue to iterate until H is approximately equal to H_o. When using multiple orifices the discharge from each is summed.

(6) Splitter Box - When the pond is designed as an offline facility, a splitter structure is used to isolate the water quality volume. The splitter box, or other flow diverting approach, should be designed to convey the 25-year storm event while providing at least 1.0 foot of freeboard along pond side slopes.

(7) Erosion Protection at the Outfall - For online facilities, special consideration should be given to the facility's outfall location. Flared pipe end sections that discharge at or near the stream invert are preferred. The channel immediately below the pond outfall should be modified to conform to natural dimensions, and lined with large stone riprap placed over filter cloth. Energy dissipation may be required to reduce flow velocities from the primary spillway to non-erosive velocities.

(8) Safety Considerations - Safety is provided either by fencing of the facility or by managing the contours of the pond to eliminate dropoffs and other hazards. Earthen side slopes should not exceed 3:1 (H:V) and should terminate on a flat safety bench area. Landscaping can be used to impede access to the facility. The primary spillway opening must not permit access by small children. Outfall pipes above 48 inches in diameter should be fenced.

Maintenance

Routine maintenance activity is often thought to consist mostly of sediment and trash and debris removal; however, these activities often constitute only a small fraction of the maintenance hours. During a recent study by Caltrans, 72 hours of maintenance was performed annually, but only a little over 7 hours was spent on sediment and trash removal. The largest recurring activity was vegetation management, routine mowing. The largest absolute number of hours was associated with vector control because of mosquito breeding that occurred in the stilling basins (example of standing water to be avoided) installed as energy dissipaters. In most cases, basic housekeeping practices such as removal of debris accumulations and vegetation

management to ensure that the basin dewaters completely in 48-72 hours is sufficient to prevent creating mosquito and other vector habitats.

Consequently, maintenance costs should be estimated based primarily on the mowing frequency and the time required. Mowing should be done at least annually to avoid establishment of woody vegetation, but may need to be performed much more frequently if aesthetics are an important consideration.

Typical activities and frequencies include:

- Schedule semiannual inspection for the beginning and end of the wet season for standing water, slope stability, sediment accumulation, trash and debris, and presence of burrows.
- Remove accumulated trash and debris in the basin and around the riser pipe during the semiannual inspections. The frequency of this activity may be altered to meet specific site conditions.
- Trim vegetation at the beginning and end of the wet season and inspect monthly to prevent establishment of woody vegetation and for aesthetic and vector reasons.
- Remove accumulated sediment and regrade about every 10 years or when the accumulated sediment volume exceeds 10 percent of the basin volume. Inspect the basin each year for accumulated sediment volume.

Cost

Construction Cost

The construction costs associated with extended detention basins vary considerably. One recent study evaluated the cost of all pond systems (Brown and Schueler, 1997). Adjusting for inflation, the cost of dry extended detention ponds can be estimated with the equation:

$$C = 12.4V^{0.760}$$

where: C = Construction, design, and permitting cost, and
V = Volume (ft^3).

Using this equation, typical construction costs are:

$ 41,600 for a 1 acre-foot pond

$ 239,000 for a 10 acre-foot pond

$ 1,380,000 for a 100 acre-foot pond

Interestingly, these costs are generally slightly higher than the predicted cost of wet ponds (according to Brown and Schueler, 1997) on a cost per total volume basis, which highlights the difficulty of developing reasonably accurate construction estimates. In addition, a typical facility constructed by Caltrans cost about $160,000 with a capture volume of only 0.3 ac-ft.

An economic concern associated with dry ponds is that they might detract slightly from the value of adjacent properties. One study found that dry ponds can actually detract from the

perceived value of homes adjacent to a dry pond by between 3 and 10 percent (Emmerling-Dinovo, 1995).

Maintenance Cost

For ponds, the annual cost of routine maintenance is typically estimated at about 3 to 5 percent of the construction cost (EPA website). Alternatively, a community can estimate the cost of the maintenance activities outlined in the maintenance section. Table 1 presents the maintenance costs estimated by Caltrans based on their experience with five basins located in southern California. Again, it should be emphasized that the vast majority of hours are related to vegetation management (mowing).

Table 1 Estimated Average Annual Maintenance Effort

Activity	Labor Hours	Equipment & Material ($)	Cost
Inspections	4	7	183
Maintenance	49	126	2282
Vector Control	0	0	0
Administration	3	0	132
Materials	-	535	535
Total	**56**	**$668**	**$3,132**

References and Sources of Additional Information

Brown, W., and T. Schueler. 1997. *The Economics of Stormwater BMPs in the Mid-Atlantic Region*. Prepared for Chesapeake Research Consortium. Edgewater, MD. Center for Watershed Protection. Ellicott City, MD.

Denver Urban Drainage and Flood Control District. 1992. *Urban Storm Drainage Criteria Manual—Volume 3: Best Management Practices*. Denver, CO.

Emmerling-Dinovo, C. 1995. Stormwater Detention Basins and Residential Locational Decisions. *Water Resources Bulletin 31(3)*: 515–521

Galli, J. 1990. *Thermal Impacts Associated with Urbanization and Stormwater Management Best Management Practices*. Metropolitan Washington Council of Governments. Prepared for Maryland Department of the Environment, Baltimore, MD.

GKY, 1989, *Outlet Hydraulics of Extended Detention Facilities* for the Northern Virginia Planning District Commission.

MacRae, C. 1996. Experience from Morphological Research on Canadian Streams: Is Control of the Two-Year Frequency Runoff Event the Best Basis for Stream Channel Protection? In *Effects of Watershed Development and Management on Aquatic Ecosystems*. American Society of Civil Engineers. Edited by L. Roesner. Snowbird, UT. pp. 144–162.

Maryland Dept of the Environment, 2000, Maryland Stormwater Design Manual: Volumes 1 & 2, prepared by MDE and Center for Watershed Protection.
http://www.mde.state.md.us/environment/wma/stormwatermanual/index.html

Metzger, M. E., D. F. Messer, C. L. Beitia, C. M. Myers, and V. L. Kramer. 2002. The Dark Side Of Stormwater Runoff Management: Disease Vectors Associated With Structural BMPs. Stormwater 3(2): 24-39.

Santana, F., J. Wood, R. Parsons, and S. Chamberlain. 1994. Control of Mosquito Breeding in Permitted Stormwater Systems. Prepared for Southwest Florida Water Management District, Brooksville, FL.

Schueler, T. 1997. Influence of Ground Water on Performance of Stormwater Ponds in Florida. *Watershed Protection Techniques* 2(4):525–528.

Watershed Management Institute (WMI). 1997. *Operation, Maintenance, and Management of Stormwater Management Systems*. Prepared for U.S. Environmental Protection Agency, Office of Water. Washington, DC.

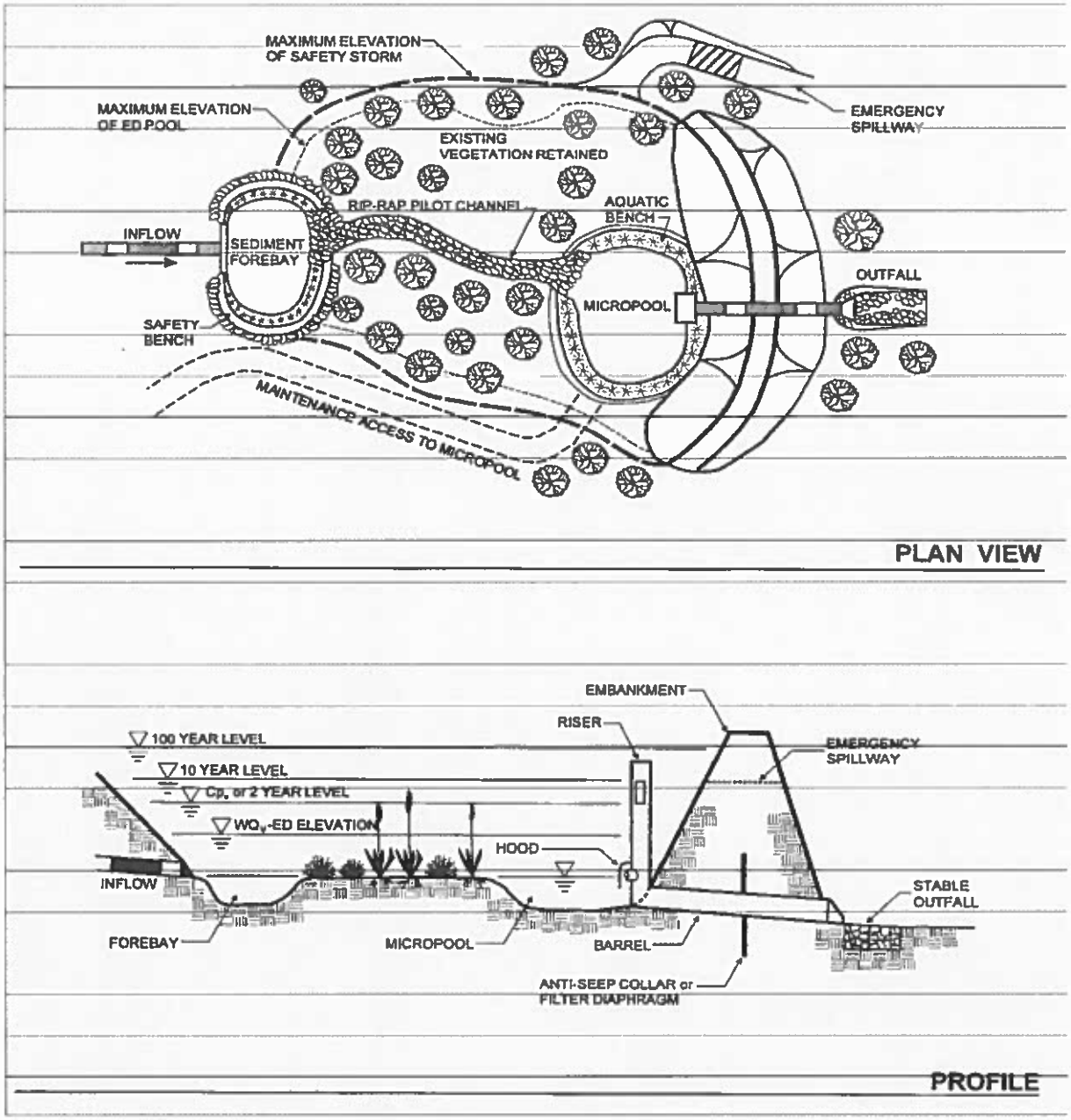
Young, G.K., et al., 1996, *Evaluation and Management of Highway Runoff Water Quality*, Publication No. FHWA-PD-96-032, U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.

Information Resources

Center for Watershed Protection (CWP), Environmental Quality Resources, and Loiederman Associates. 1997. *Maryland Stormwater Design Manual*. Draft. Prepared for Maryland Department of the Environment, Baltimore, MD.

Center for Watershed Protection (CWP). 1997. *Stormwater BMP Design Supplement for Cold Climates*. Prepared for U.S. Environmental Protection Agency, Office of Wetlands, Oceans and Watersheds. Washington, DC.

U.S. Environmental Protection Agency (USEPA). 1993. *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*. EPA-840-B-92-002. U.S. Environmental Protection Agency, Office of Water, Washington, DC.



Schematic of an Extended Detention Basin (MDE, 2000)

Appendix T
Alternative Site Analysis

ESA

Superintendent's Advisory Committee

Process and Recommendation

January 11, 2018

Committee Members

Community Members

- Eric Ortega – Pala
- Tom Flanagan – Rancho
- Eric Nordeen – Gird
- Kassandra Costa – Sullivan
- Jeff Johnson – Bonsall ES
- Brian Olson – Bonsall West
- Margarette Morgan – Chair Bonsall Community Sponsor Group

Staff Members

- Julie Urquhart – BTA President
- Lee Fleming – BHS Principal
- William Pickering – Assistant Superintendent Business Services

Committee Process

Committee discussion and feedback related to the current reality of facilities, growth in student population, and the immediate need for facilities planning and building a high school.

Committee Process

1. Enrollment Projections

- Bonsall High School & district totals

	FY	9	10	11	12	HS	Change		BUSD	Change	
							#	%	1,964	#	%
Actual	2011-12	0	0	0	0				2,127	163	8.3%
	2012-13	0	0	0	0				2,259	132	6.2%
	2013-14	0	0	0	0				2,287	28	1.2%
	2014-15	64	0	0	0	64			2,382	95	4.2%
	2015-16	73	64	0	0	137	73	114.1%	2,464	82	3.4%
	2016-17	91	80	58	0	229	92	67.2%	2,581	117	4.7%
Projection	2017-18	102	85	84	57	328	99	43.2%	2,650	69	2.7%
	2018-19	119	102	85	84	390	62	18.9%	2,908	258	9.7%
	2019-20	150	128	111	91	480	90	23.1%	2,959	51	1.8%
	2020-21	175	150	128	111	564	84	17.5%	3,337	378	12.8%
	2021-22	198	195	167	143	703	139	24.6%			
							Average	44.1%		Average	5.5%

These numbers will be on page10

Committee Process

- Reviewed importance of Prop 51 state funding.
- $1.13 billion remains of $3.0 billion for new construction.
- Estimated funds available for projects turned in over next 20 months.
- With matching funds, BUSD could secure estimated $9,000,000.

Committee Process

- Committee discussion and feedback related to the current reality of properties available.
- Of 6 selected for further review, none are currently on the market for sale.
- Board directive to ask realtor to conduct final search for available properties.
- Committee discussion and feedback related to a bond election needed to pay for building a new school.

Site Analysis Strategy

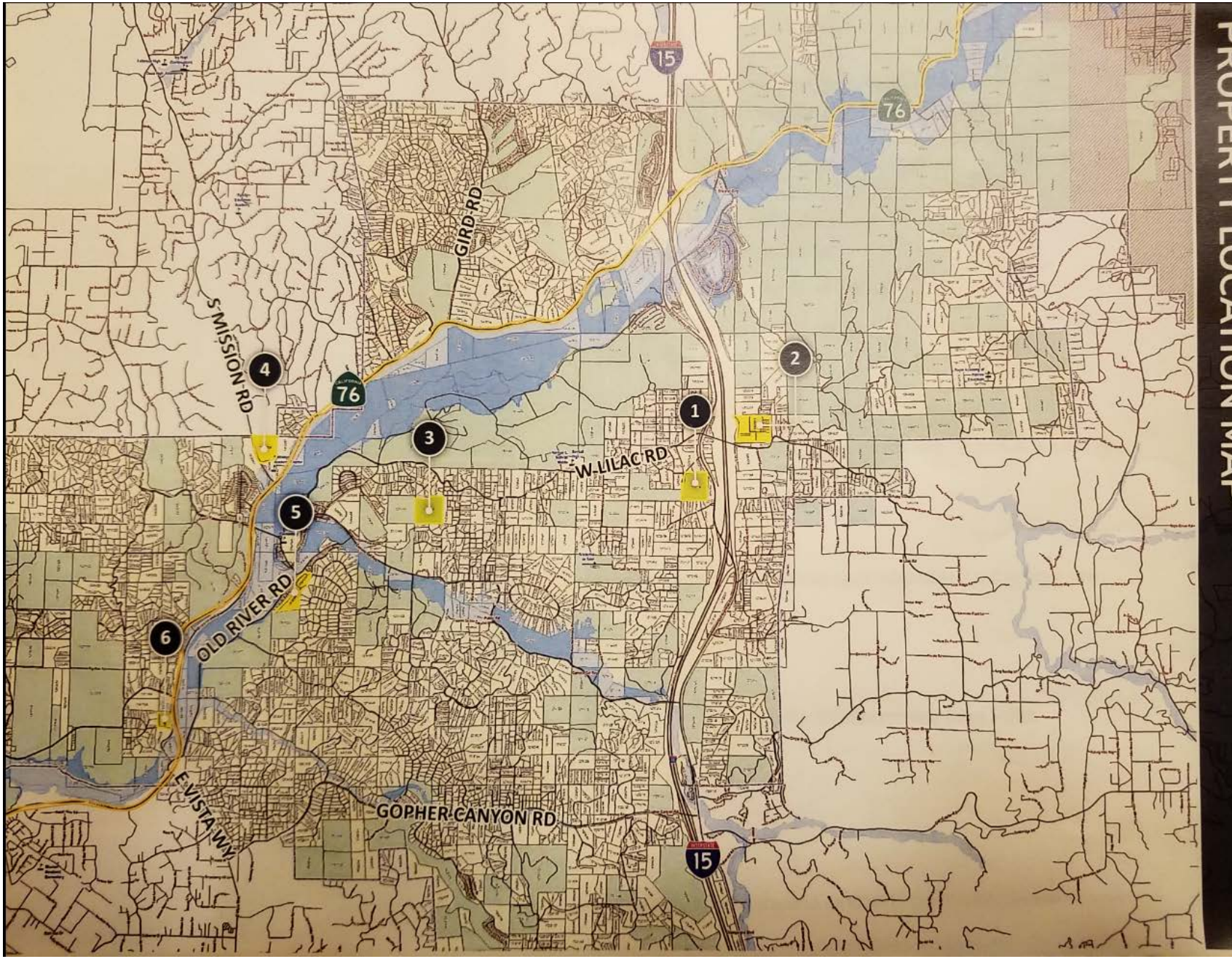
Property Search Parameters:
- Not more than ¼ mile from arterial or collection road.
- Sewer service proximity.
- Location of ingress and egress points.
- Topography
- 25 – 60 acre sites
- No flood plain or flood way locations

Scope

- 8 Potential sites
  - 6 sites presented by Patrick Miller on Wednesday 11/15.
  - Gird
  - Ocean Breeze

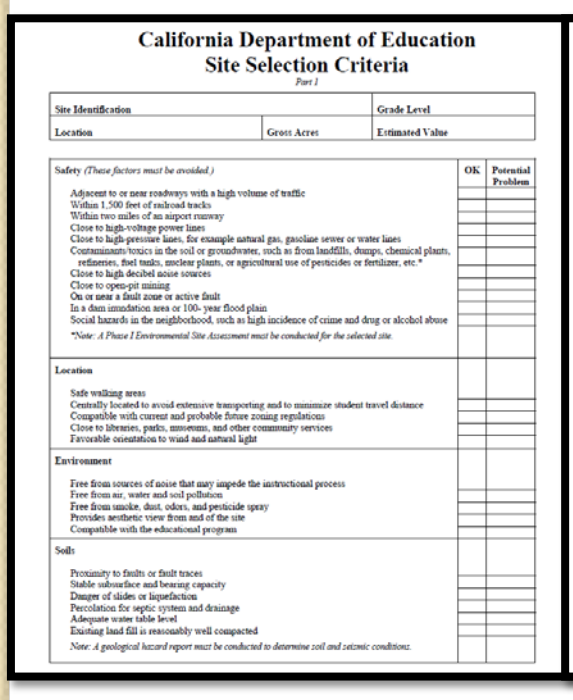
Methodology

1. Narrow scope
   - 8 original sites narrowed to 5 through initial weighted ranking of committee.
2. Utilize California Department of Education (CDE) site analysis tools and process
3. Utilize extensive publically available APN data for each site (Margarette Morgan)
   - https://gis-public.co.san-diego.ca.us/ISRP/home (Initial Study Research Packet)
4. Use both statistical evaluation methods and qualitative input from committee.
5. Present factual findings.


PROPERTY LOCATION MAP
15
76
GIRD RD
S MISSION RD
4
76
3
2
1
W LILAC RD
5
OLD RIVER RD
6
E VISTA WY
GOPHER CANYON RD
15

CDE Tools and Process

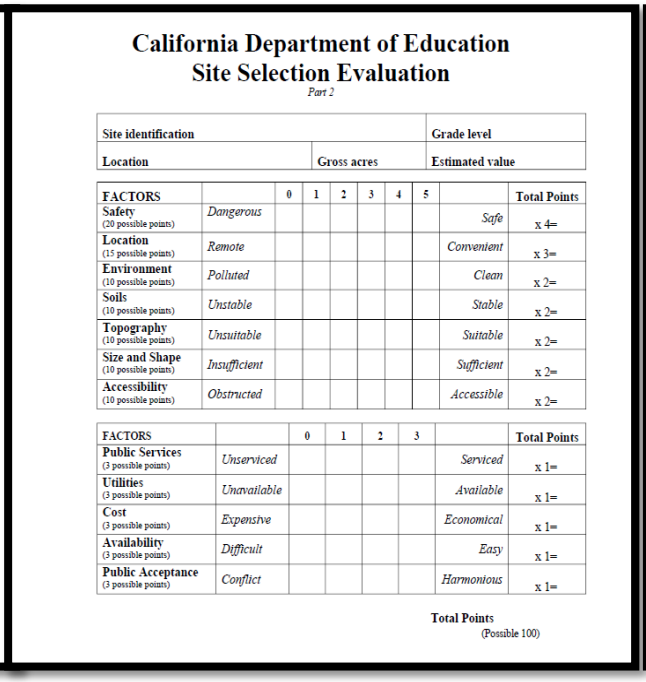
William Pickering provided the committee 3 CDE forms



California Department of Education
Site Selection Criteria
Part 1

Site Identification		Grade Level
Location	Gross Acres	Estimated Value

	OK	Potential Problem
Safety *(These factors must be avoided.)*		
Adjacent to or near roadways with a high volume of traffic		
Within 1,500 feet of railroad tracks		
Within two miles of an airport runway		
Close to high-voltage power lines		
Close to high-pressure lines, for example natural gas, gasoline sewer or water lines		
Contaminants/toxics in the soil or groundwater, such as from landfills, dumps, chemical plants, refineries, fuel tanks, nuclear plants, or agricultural use of pesticides or fertilizer, etc.*		
Close to high decibel noise sources		
Close to open-pit mining		
On or near a fault zone or active fault		
In a dam inundation area or 100- year flood plain		
Social hazards in the neighborhood, such as high incidence of crime and drug or alcohol abuse		
**Note: A Phase I Environmental Site Assessment must be conducted for the selected site.*		
Location		
Safe walking areas		
Centrally located to avoid extensive transporting and to minimize student travel distance		
Compatible with current and probable future zoning regulations		
Close to libraries, parks, museums, and other community services		
Favorable orientation to wind and natural light		
Environment		
Free from sources of noise that may impede the instructional process		
Free from air, water and soil pollution		
Free from smoke, dust, odors, and pesticide spray		
Provides aesthetic view from and of the site		
Compatible with the educational program		
Soils		
Proximity to faults or fault traces		
Stable subsurface and bearing capacity		
Danger of slides or liquefaction		
Percolation for septic system and drainage		
Adequate water table level		
Existing land fill is reasonably well compacted		
Note: A geological hazard report must be conducted to determine soil and seismic conditions.		



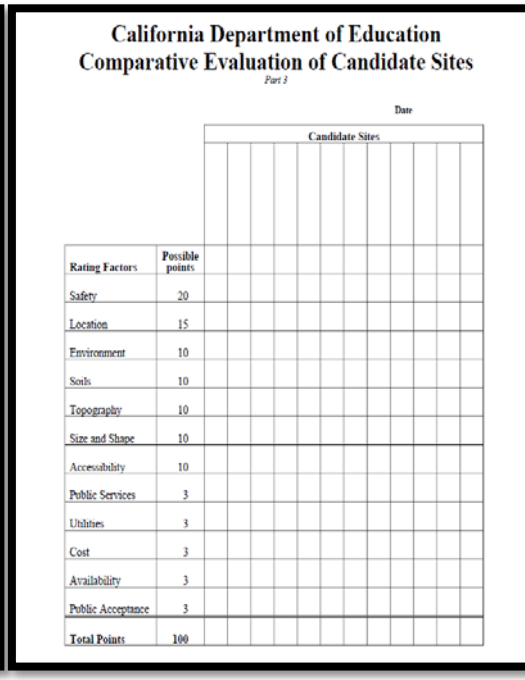
California Department of Education
Site Selection Evaluation
Part 2

Site identification		Grade level
Location	Gross acres	Estimated value

FACTORS		0	1	2	3	4	5		Total Points
Safety (20 possible points)	*Dangerous*							*Safe*	x 4=
Location (15 possible points)	*Remote*							*Convenient*	x 3=
Environment (10 possible points)	*Polluted*							*Clean*	x 2=
Soils (10 possible points)	*Unstable*							*Stable*	x 2=
Topography (10 possible points)	*Unsuitable*							*Suitable*	x 2=
Size and Shape (10 possible points)	*Insufficient*							*Sufficient*	x 2=
Accessibility (10 possible points)	*Obstructed*							*Accessible*	x 2=

FACTORS		0	1	2	3		Total Points
Public Services (3 possible points)	*Unserviced*					*Serviced*	x 1=
Utilities (3 possible points)	*Unavailable*					*Available*	x 1=
Cost (3 possible points)	*Expensive*					*Economical*	x 1=
Availability (3 possible points)	*Difficult*					*Easy*	x 1=
Public Acceptance (3 possible points)	*Conflict*					*Harmonious*	x 1=

Total Points
(Possible 100)



California Department of Education
Comparative Evaluation of Candidate Sites
Part 3

Date

Rating Factors	Possible points	Candidate Sites
Safety	20	
Location	15	
Environment	10	
Soils	10	
Topography	10	
Size and Shape	10	
Accessibility	10	
Public Services	3	
Utilities	3	
Cost	3	
Availability	3	
Public Acceptance	3	
Total Points	100	

Site Analysis - Is / Is Not

IS	IS NOT
• An overall ranking of potential sites.	• A professional school site evaluation.
• A recommendation of 2 sites.	• A recommendation on what type/grade level of school to build on any given site.
• The result of a diverse committee with representatives from the community, who have reached consensus with the presented findings.	• Proposal on different options the board may have to buy, swap, exchange, sell, etc. land.
	• A financial analysis on the various site alternatives.

Site Analysis Results

Part 3 ADJUSTED

Jan-2018		Candidate Sites				
Red = lower 50% Yellow = 51 to 80% Green = top 20%		Site 4 Mission Rd	Site 5 Old River Rd	Site 6 Holly Ln	Site 7 Ocean Breeze	Site 8 Gird Rd
Rating Factors	**Possible Points**	**73**	**78**	**77**	**75**	**91**
Safety	20	19	19	18	18	20
Location	15	12	13	11	11	13
Environment	10	8	9	7	8	10
Soils	10	7	8	9	9	9
Topography	10	3	5	9	7	10
Size and Shape	10	8	10	5	8	9
Accessibility	10	8	7	9	6	9
Public Services	3	3	2	3	2	2
Utilities	3	3	3	3	3	3
Cost	3	1	1	2	2	3
Availability	3	1	1	0	2	3
Public Acceptance	3	1	2	2	2	2

Gird is the highest scoring site.

Site 5 – Old River Road is 2nd highest scoring site.

Conclusion

After reviewing the 6 properties presented by realtor, Patrick Miller (in addition to Ocean Breeze and Gird Road properties), the BUSD Superintendent's Advisory Committee determined that there were multiple sites to consider within the Bonsall Unified School District. Gird Road was determined to be the preferred site. "Property 5", off of Old River Road, was the second preferred site.